

NASA'S UNIVERSITY PROGRAM

ACTIVE PROJECTS

FISCAL YEAR 1982

**National Aeronautics and Space Administration
Office of Procurement
Procurement Management Division
Washington, D. C. 20546**

FOREWARD

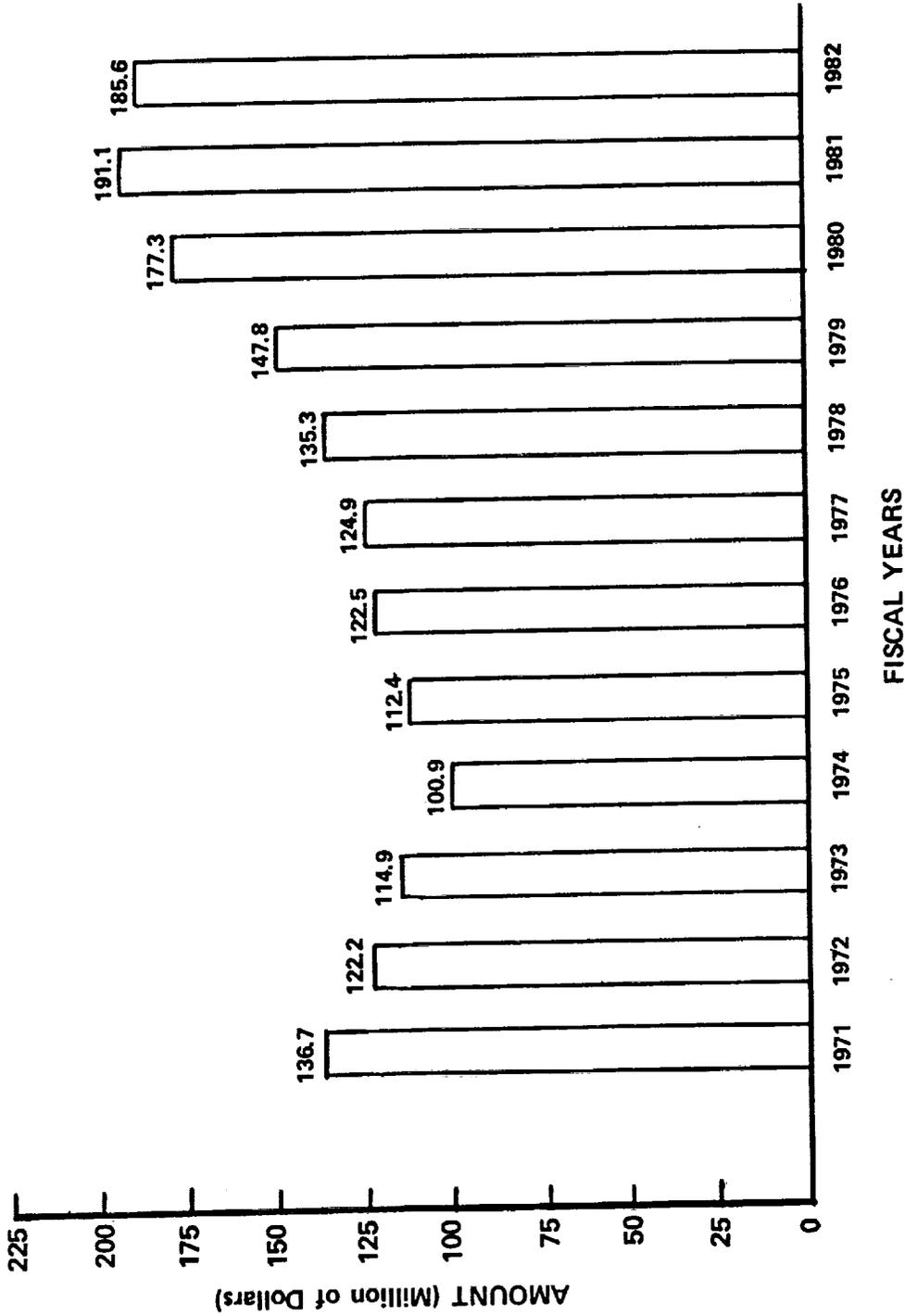
As basic policy NASA believes that colleges and universities should be encouraged to participate in the nation's space and aeronautics program to the maximum extent practicable. Indeed, universities are considered as partners with government and industry in the nation's aerospace program. NASA's objective is to have them bring their scientific, engineering, and social research competence to bear on aerospace problems and on the broader social, economic, and international implications of NASA's technical and scientific programs. It is expected that, in so doing, universities will strengthen both their research and their educational capabilities to contribute more effectively to the national well-being.

NASA Field Centers and certain Headquarters Program Offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. Although NASA has no predetermined amount of money to devote to university activities, the effort funded each year is substantial. (See the bar chart on the next page). This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.

The report was prepared by the Procurement Management Division, Office of Procurement, NASA Headquarters.

NASA OBLIGATIONS TO UNIVERSITIES

FISCAL YEARS 1971 - 1982



NOTE: Excludes awards to California Institute of Technology for operation of the Jet Propulsion Laboratory.

FY 1971 includes \$15.0M in awards to Draper Lab.

FY 1972 includes \$5.7M in awards to Draper Lab.

FY 1973 includes \$5.2M in awards to Draper Lab.

In FY 1974 Draper Lab status changed from "university" to "nonprofit".

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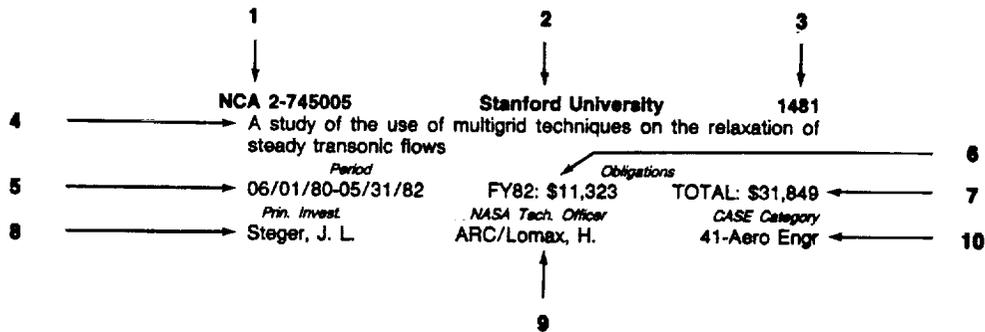
This report includes data on projects active during Fiscal Year 1982.

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USER'S GUIDE

The University Program Report provides current information and related statistics for each grant/contract/cooperative agreement active during the report period. The following guidance is provided as an aid to the reader in readily locating material of interest and in optimizing the use of this document.

I. Typical Citation



1. Agreement Number.*
2. Institution Name.
3. Accession Number.
4. Brief work description.
5. Approximate period of performance.
6. Amount (if any) actually provided during the indicated fiscal year.
7. Total amount actually provided during the indicated period of performance.
8. Principal Investigator(s) at the educational institution.
9. NASA Technical Officer(s) and organizational location.
10. CASE Field of Science and Engineering code and name.

*Uniquely identifies project. Prefixes denote type of instrument as follows:

Grants	NAG, NAGW, NGF, NGT, NGL, NGR, NSG
Cooperative Agreements	NCC, NCCW
Contracts	DEN, NAS, NASR, NASW, NSR
Space Act Agreements	NCA

II. NASA Installations

NASA installations are included in the citation as abbreviations (item 9). The following listing of installations will be useful to those desiring further information on specific projects.

Abbrev.	Installation Name and Address	Telephone Number for Information
ARC	Ames Research Center NASA Moffett Field, CA 94035	415/965-5000
DFRC	Dryden Flight Research Facility NASA P.O. Box 273 Edwards, CA 93523	805/258-3311
GSFC	Goddard Space Flight Center NASA Greenbelt, MD 20771	301/344-5121
JSC	Johnson Space Center NASA Houston, TX 77058	713/483-3111
KSC	Kennedy Space Center NASA Kennedy Space Center, FL 32899	305/867-7110
LARC	Langley Research Center NASA Hampton, VA 23665	804/827-1110
LERC	Lewis Research Center NASA 21000 Brookpark Road Cleveland, OH 44135	216/433-4000
MSFC	Marshall Space Flight Center NASA Marshall Space Flight Center, AL 35812	205/453-2121
NSTL	National Space Technology Laboratories NASA NSTL Station, MS 39529	601/688-2211
HQ	NASA Headquarters Washington, DC 20546	202/755-2320

The abbreviation for NASA Headquarters, HQ, usually carries a suffix, for example HQ-EB, which denotes a particular office code and general area of responsibility. A full listing of the suffix letters and information on NASA's organizational structure may be found in the NASA Headquarters Telephone Directory. (The Directory is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

III. CASE Fields of Science and Engineering

The National Science Foundation (NSF) operates a government-wide system (CASE) for collecting and analyzing data on support to colleges and universities. Participating agencies report annually to NSF which in turn issues *Support to Universities, Colleges and Selected Nonprofit Institutions*. The CASE Fields, used in the extensive tabulations contained in that document, form the only consistent classification system for government sponsored research. The fields are listed in full in the Appendix.

IV. Cross-Index

The cross-indexed Appendix provides rapid access to all projects in a particular area of endeavor, as defined by the CASE Fields. This listing is also easily used to determine the institutions and principal investigators conducting NASA projects in a field. Entries are related to the citations (descriptions) by the accession number (item 3). The accession number has meaning only in this report; it is in no way permanently associated with nor does it uniquely identify a specific grant/contract/cooperative agreement anywhere except in the present report. Accession numbers are assigned sequentially to the citations, beginning with 1000. Thus, when an entry of interest is identified in the Appendix, the associated accession number allows ready location of the full description in the body of the report.

NASA'S UNIVERSITY PROGRAM

ALABAMA

NAG 8-1	Alabama A&M University	1000
Development of capabilities for computer processing of remotely sensed data		
<i>Period</i>	<i>Obligations</i>	
01/23/80-01/22/83	FY82: TOTAL: \$110,184	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	NSTL/Mooneyhan, D. W.	
	NSTL/Whitley, S. L.	39-Env Sci, NEC
NAG 8-13	Alabama A&M University	1001
Application of remotely sensed data to regional processing of remotely sensed data		
<i>Period</i>	<i>Obligations</i>	
06/26/81-06/25/84	FY82: TOTAL: \$116,196	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Montgomery, O. L.	NSTL/Mooneyhan, D. W.	
	NSTL/Whitley, S. L.	39-Env Sci, NEC
NAS 8-32945	Alabama A&M University	1002
Solution growth of crystals in zero gravity experiment for materials processing in space		
<i>Period</i>	<i>Obligations</i>	
03/05/78-03/05/83	FY82: \$134,000 TOTAL: \$500,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lal, R. B.	MSFC/Moore, W. W., Jr.	
	MSFC/Fogle, V.	47-Materials Engr
NAS 8-34591	Alabama A&M University	1003
AXAF technology program support: The analysis of high resolution X-ray scattering measurements		
<i>Period</i>	<i>Obligations</i>	
10/28/81-10/27/82	FY82: \$24,200 TOTAL: \$24,200	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, A. C.	MSFC/Weisskopf, M. C.	
		22-Computer Science
	MSFC/Wyman, C. L.	
NGT 01-001-800	Alabama A&M University	1004
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$14,680 TOTAL: \$14,680	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, A. C.	HQ-LB/Carter, C. H.	13-Physics
NGT 01-001-801	Alabama A&M University	1005
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$10,720 TOTAL: \$10,720	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
George, M. C.	HQ-LB/Carter, C. H.	13-Physics
NSG 8037	Alabama A&M University	1006
Atmospheric effects on coherent laser systems		
<i>Period</i>	<i>Obligations</i>	
06/01/76-06/01/83	FY82: \$26,413 TOTAL: \$176,126	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murty, S. R.	MSFC/Bilbro, J. W.	45-Elec Engr
	MSFC/Kent, M. I.	
NSG 8067	Alabama A&M University	1007
Characterization of space environment using plant cells and tissues		
<i>Period</i>	<i>Obligations</i>	
02/01/79-03/14/82	FY82: TOTAL: \$132,310	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sharma, G. C.	MSFC/Snyder, R. S.	51-Biological Sci
Beyl, C.	MSFC/Kent, M. I.	
NSG 8068	Alabama A&M University	1008
The motion of particles in interstellar space released from a nuclear waste payload container		
<i>Period</i>	<i>Obligations</i>	
07/01/79-08/31/81	FY82: TOTAL: \$52,416	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, A. C.	MSFC/Burns, R. E.	13-Physics
	MSFC/Kent, M. I.	
NAS 8-34432	Athens State College	1009
Vapor transport mechanisms		
<i>Period</i>	<i>Obligations</i>	
08/27/81-08/26/82	FY82: \$30,404 TOTAL: \$40,404	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holland, L. R.	MSFC/Fogle, V.	39-Env Sci, NEC
	MSFC/Zwiener, J. M.	
NAG 3-103	Auburn University	1010
Development of laser speckle techniques and procedures for determining stresses in rotating turbine blades		
<i>Period</i>	<i>Obligations</i>	
09/15/80-12/15/81	FY82: TOTAL: \$44,455	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swinson, W. F.	LERC/Decker, A. J.	46-Mech Engr
Turner, J. L.		
NAS 8-33092	Auburn University	1011
Developing and characterizing improved radiation hard technology for space applications (CMOS)		
<i>Period</i>	<i>Obligations</i>	
11/06/78-10/30/82	FY82: TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kerns, D. V.	MSFC/Dehaye, R.	45-Elec Engr
Cook, K. B.		
NAS 8-33880	Auburn University	1012
Radiation and scattering of ionized lightning channels		
<i>Period</i>	<i>Obligations</i>	
05/28/80-11/01/81	FY82: TOTAL: \$35,453	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shumpert, T.	MSFC/Harper, W.	45-Elec Engr
	MSFC/Wagnon, F. W.	

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAS 8-33886 **Auburn University** **1013**
 Research study: Solid rocket motor internal ballistic performance variations
Period *Obligations*
 09/03/80-09/30/83 FY82: \$58,913 TOTAL: \$134,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Foster, W. MSFC/Shackelford, B. 31-Atmos Sci
 Forzini, R. S. MSFC/Aderbald, H.

NAS 8-34130 **Auburn University** **1014**
 Application of aerospace dynamic modeling techniques of civil engineering structures
Period *Obligations*
 10/01/80-07/31/82 FY82: TOTAL: \$59,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Moore, R. K. MSFC/Slaby, J. A. 32-Geological Sci
 Ramey, G. E. MSFC/Schock, R. W.
 Yoo, C. J.

NSG 2217 **Talladega College** **1015**
 Experimental research on the thermodynamic properties of sulfuric acid
Period *Obligations*
 05/01/77-06/30/82 FY82: \$30,000 TOTAL: \$189,625
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Chu, K. S. ARC/Whitten, R. C. 13-Physics
 Morrison, R. ARC/Farlow, N. A.

NAG 1-31 **Tuskegee Institute** **1016**
 Software requirements for a robot visual system operating in real-time
Period *Obligations*
 02/01/80-12/31/81 FY82: TOTAL: \$20,615
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bales, J. W. LARC/Barker, L. K. 22-Computer Science
 LARC/Hankins, W. W.

NAG 1-72 **Tuskegee Institute** **1017**
 Minimization of differences between simulated and actual flight data for area navigation on high speed aircraft
Period *Obligations*
 05/19/80-08/18/81 FY82: TOTAL: \$42,079
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hargrove, A. LARC/Knox, C. E. 41-Aero Engr

NAG 1-172 **Tuskegee Institute** **1018**
 Solution of nonlinear multivariable constrained systems using gradient projection digital algorithm insensitive to initial state
Period *Obligations*
 05/01/81-04/30/83 FY82: TOTAL: \$70,658
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hargrove, A. LARC/Hogge, J. E. 29-Math/Computer, NEC
 LARC/Shoosmith, J. N.

NAG 2-22 **Tuskegee Institute** **1019**
 Liver cells: A model system for studies on metabolism in space
Period *Obligations*
 04/01/80-05/31/81 FY82: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tolbert, M. E. ARC/Klein, H. P. 51-Biological Sci

NAG 3-78 **Tuskegee Institute** **1020**
 Characterization of advanced electric propulsion systems
Period *Obligations*
 06/02/80-01/30/83 FY82: \$40,905 TOTAL: \$79,272
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ray, P. K. LERC/Kerslake, W. R. 19-Phys Sci, NEC

NAG 8-5 **Tuskegee Institute** **1021**
 Investigation of degradation process of insulating materials
Period *Obligations*
 05/01/80-09/30/81 FY82: TOTAL: \$36,848
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Doreswamy, C. V. MSFC/Peacock, C. L. 45-Elec Engr
 MSFC/Kent, M. I.

NAG10-1 **Tuskegee Institute** **1022**
 Study of permeability of polymeric materials to condensable gases and organic liquids
Period *Obligations*
 02/25/80-02/24/82 FY82: TOTAL: \$78,323
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dillon, I. G. KSC/Bryan, C. J. 12-Chemistry

NAG10-6 **Tuskegee Institute** **1023**
 Permeability of polymeric materials to condensable gases and organic liquids
Period *Obligations*
 04/01/82-03/31/83 FY82: \$28,273 TOTAL: \$28,273
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dillon, I. G. KSC/Bryan, C. J. 12-Chemistry

NCC 2-12 **Tuskegee Institute** **1024**
 Morphometrics of cellular damage in mice receiving whole body irradiation
Period *Obligations*
 08/01/79-07/31/83 FY82: \$50,000 TOTAL: \$185,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sapp, W. J. ARC/Philpott, D. E. 54-Env Biology

NGT 01-005-750 **Tuskegee Institute** **1025**
 Training of undergraduate students in sciences and engineering
Period *Obligations*
 06/01/75-05/31/83 FY82: TOTAL: \$110,887
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Harris, G. HQ-LC/Pohly, J. G. 49-Engr, NEC
 HQ-U/Jenkins, H. G.

NSG 3295 **Tuskegee Institute** **1028**
 An improved computer model for prediction of axial gas turbine performance losses
Period *Obligations*
 08/01/79-12/29/83 FY82: \$57,564 TOTAL: \$170,677
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Jenkins, R. M. LERC/Civinskas, K. C. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NSG 8054 Tuskegee Institute 1027
An investigation of absorber and radiators for solar power systems
Period *Obligations*
09/01/77-01/31/82 FY82: TOTAL: \$92,441
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sellers, J. P., Jr. MSFC/Peoples, J. A. 46-Mech Engr

NAS 8-34728 University of Alabama - Birmingham 1028
Extended range X-ray telescope: X-ray microscope design
Period *Obligations*
01/29/82-06/28/82 FY82: \$11,000 TOTAL: \$11,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shealy, D. L. MSFC/Hoover, R. B. 13-Physics
MSFC/Hildner, E.

NGR 01-010-001 University of Alabama - Birmingham 1029
Model for origin and coevolution of genetic code and the process of protein synthesis
Period *Obligations*
05/09/73-06/30/83 FY82: \$72,000 TOTAL: \$495,056
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lacey, J. C., Jr. HQ-EB/Devincenzi, D. L. 12-Chemistry

NAG 8-18 University of Alabama - Huntsville 1030
Thermal ion dynamics experiment (TIDE): An investigation of low-energy (o 100ev) ions on the PPL and EML spacecraft on the OPEN mission
Period *Obligations*
08/30/82-10/29/83 FY82: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horwitz, J. MSFC/Chappell, R. 11-Astronomy

NAGW 9 University of Alabama - Huntsville 1031
Dynamical behavior of a flaring loop (a two dimensional, time-dependent MHD (magnetohydrodynamic) flux tube model
Period *Obligations*
10/01/79-10/31/82 FY82: \$74,996 TOTAL: \$169,996
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, S. T. HQ-EZ/Chipman, E. 13-Physics

NAGW 247 University of Alabama - Huntsville 1032
Cometary spectroscopy
Period *Obligations*
11/01/81-10/31/82 FY82: TOTAL: \$23,002
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, B. A. HQ-EL/Brunk, W. E. 11-Astronomy
Larson, S. M. HQ-EL/Murphy, R. E.

NAGW 294 University of Alabama - Huntsville 1033
Impulsive X-ray emission in solar flares
Period *Obligations*
04/01/82-03/31/83 FY82: \$22,994 TOTAL: \$22,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emslite, G. HQ-EZ/Chipman, E. G. 13-Physics

NAS 8-29316 University of Alabama - Huntsville 1034
Working model of the London Moment Readout System
Period *Obligations*
10/06/72-03/31/82 FY82: TOTAL: \$698,181
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hendricks, J. B. MSFC/Decher, R. 46-Mech Engr
Karr, G. R. MSFC/Urban, E. W.

NAS 8-31170 University of Alabama - Huntsville 1035
Study of efficient low power diffractometer designs
Period *Obligations*
01/15/75-08/30/83 FY82: \$44,595 TOTAL: \$220,483
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregory, J. C. MSFC/Parnell, T. A. 13-Physics
MSFC/Fishman, G. J.

NAS 8-31293 University of Alabama - Huntsville 1036
Solar heating and cooling technical data and systems analysis
Period *Obligations*
11/07/74-09/30/81 FY82: TOTAL: \$1,787,718
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Staton, B. G. MSFC/Krupnick, A. C. 13-Physics
MSFC/Davidson, T.

NAS 8-32818 University of Alabama - Huntsville 1037
Infrared telescope cryogenic system design and development
Period *Obligations*
03/31/78-11/30/82 FY82: \$47,600 TOTAL: \$341,538
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hendricks, J. B. MSFC/Urban, E. W. 13-Physics
Karr, G. R. MSFC/Ladner, D. R.

NAS 8-33096 University of Alabama - Huntsville 1038
Design automation of digital systems
Period *Obligations*
08/09/78-12/31/82 FY82: TOTAL: \$156,278
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shiva, S. G. MSFC/Juergensen, K. 22-Computer Science

NAS 8-33132 University of Alabama - Huntsville 1039
Orbiting space science platform
Period *Obligations*
06/01/78-09/30/81 FY82: TOTAL: \$134,419
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, S. T. MSFC/Ballance, J. 19-Phys Sci, NEC
MSFC/Hickey, J. D.

NAS 8-33377 University of Alabama - Huntsville 1040
Analysis and modeling of materials space environmental effects data
Period *Obligations*
06/22/79-11/30/81 FY82: TOTAL: \$92,972
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davis, J. H. MSFC/Whitaker, A. F. 47-Materials Engr
Wagner, P. MSFC/Peacock, C. L.

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAS 8-33384 University of Alabama - Huntsville 1041
Test facility for Helium-3 refrigerator research

<i>Period</i>	<i>Obligations</i>	
05/31/79-01/31/83	FY82: TOTAL: \$72,322	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hendricks, J. B.	MSFC/Urban, E. W. MSFC/Tracey, R. S.	12-Chemistry

NAS 8-33809 University of Alabama - Huntsville 1048
Research related to the relativity Explorer

<i>Period</i>	<i>Obligations</i>	
05/21/81-06/20/83	FY82: \$94,000 TOTAL: \$186,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karr, G. R. Hendricks, J. B.	MSFC/Decher, R.	31-Atmos Sci

NAS 8-33525 University of Alabama - Huntsville 1042
Analysis and application of vector magnetic field data in predicting flares

<i>Period</i>	<i>Obligations</i>	
03/03/80-09/02/82	FY82: TOTAL: \$64,507	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Krall, K. R. Wu, S. T. Smith, J. B.	MSFC/Hagyard, D. J. MSFC/Tandberghanssen, E.	31-Atmos Sci

NAS 8-33810 University of Alabama - Huntsville 1049
Directionally solidify superconducting materials

<i>Period</i>	<i>Obligations</i>	
06/29/81-10/24/82	FY82: TOTAL: \$12,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, J.	MSFC/McClure, J. C. MSFC/Parr, R. A.	47-Materials Engr

NAS 8-33526 University of Alabama - Huntsville 1043
Data analysis and modeling of ultraviolet spectrometer and polarimeter (UVSP) experiment and other related experiments for Solar Maximum Mission (SMM)

<i>Period</i>	<i>Obligations</i>	
02/29/80-05/31/83	FY82: \$41,489 TOTAL: \$268,558	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, S. T.	MSFC/Tandberghanssen, E. MSFC/Watkins, J. R.	31-Atmos Sci

NAS 8-33811 University of Alabama - Huntsville 1050
Hydrogen embrittlement in Cu-Ni alloys

<i>Period</i>	<i>Obligations</i>	
05/27/81-05/26/83	FY82: \$22,000 TOTAL: \$42,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, J. H.	MSFC/McClure, J. C. MSFC/Munaf, P. M.	47-Materials Engr

NAS 8-33542 University of Alabama - Huntsville 1044
Advanced furnace development and scientific coordination activity

<i>Period</i>	<i>Obligations</i>	
06/29/79-12/31/82	FY82: TOTAL: \$68,955	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hendriks, J. B.	MSFC/Bass, B. G. MSFC/Horton, J.	47-Materials Engr

NAS 8-33812 University of Alabama - Huntsville 1051
Electrodeposition in microgravity

<i>Period</i>	<i>Obligations</i>	
05/13/81-06/30/82	FY82: TOTAL: \$25,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Riley, C. Coble, H. D.	MSFC/Owen, R. B. MSFC/Bass, B. B.	31-Atmos Sci

NAS 8-33548 University of Alabama - Huntsville 1045
An X-ray diffraction analysis of Ne3Ge

<i>Period</i>	<i>Obligations</i>	
07/11/79-02/10/82	FY82: TOTAL: \$25,104	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, J. H.	MSFC/Rathz, L. L. MSFC/Robinson, M. B.	47-Materials Engr

NAS 8-33975 University of Alabama - Huntsville 1052
High energy cosmic ray balloon flight investigations

<i>Period</i>	<i>Obligations</i>	
06/13/80-06/12/83	FY82: \$15,000 TOTAL: \$99,688	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gregory, J. C.	MSFC/Fishman, G. J. MSFC/Farnell, T. A.	13-Physics

NAS 8-33726 University of Alabama - Huntsville 1046
Study effects of internal wave on the neutral atmosphere

<i>Period</i>	<i>Obligations</i>	
02/11/80-02/15/83	FY82: \$102,699 TOTAL: \$272,699	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hung, R. J.	MSFC/West, G. W. MSFC/Smith, R. F.	32-Geological Sci

NAS 8-33977 University of Alabama - Huntsville 1053
X-ray astronomy instrumentation studies

<i>Period</i>	<i>Obligations</i>	
07/18/80-07/17/81	FY82: TOTAL: \$15,417	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gregory, J. C.	MSFC/Weisskopf, M. C. MSFC/Parnell, T. H.	11-Astronomy

NAS 8-33731 University of Alabama - Huntsville 1047
Containerless processing technology analysis

<i>Period</i>	<i>Obligations</i>	
05/09/80-08/31/82	FY82: \$5,000 TOTAL: \$65,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rush, J. E.	MSFC/Theiss, J. M. MSFC/Ethridge, E. C.	13-Physics

NAS 8-33978 University of Alabama - Huntsville 1054
New polymers for low-gravity purification of cells by partitioning

<i>Period</i>	<i>Obligations</i>	
09/10/80-09/30/83	FY82: \$55,716 TOTAL: \$101,716	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harris, J. M.	MSFC/Snyder, R. S. MSFC/Moore, W. W.	12-Chemistry

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NAS 8-33982 University of Alabama - Huntsville 1055
Plasma and magnetospheric research
Period *Obligations*
08/27/80-12/15/82 FY82: \$160,000 TOTAL: \$400,499
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Comfort, R. H. MSFC/Chappell, C. R. 13-Physics
Horwitz, J. L. MSFC/Fields, S. F.

NAS 8-34573 University of Alabama - Huntsville 1062
Advanced solar physics experimental concepts to address particular science problems of interest
Period *Obligations*
09/01/81-12/31/82 FY82: \$33,946 TOTAL: \$110,057
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, S. T. MSFC/Ballance, J. O. 19-Phys Sci, NEC
MSFC/Nein, M. E.

NAS 8-34129 University of Alabama - Huntsville 1058
Data-based management system (DBMS) group
Period *Obligations*
09/19/80-11/18/80 FY82: TOTAL: \$17,076
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horwitz, J. L. MSFC/Green, J. L.
29-Math/Cmputer,NEC
MSFC/Baugher, C.

NAS 8-34711 University of Alabama - Huntsville 1063
Calculation of side lobe levels antenna mast
Period *Obligations*
11/02/81-05/01/82 FY82: \$14,078 TOTAL: \$14,078
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chan, C. H. MSFC/Thompson, W. E.
29-Math/Cmputer,NEC

NAS 8-34137 University of Alabama - Huntsville 1057
Burst and transient source experiment (BATSE) for the gamma-ray observatory
Period *Obligations*
02/05/81-08/31/83 FY82: \$50,000 TOTAL: \$107,985
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregory, J. C. MSFC/Fishman, G. J. 31-Atmos Sci
MSFC/Eby, P. B.

NAS 8-34953 University of Alabama - Huntsville 1064
Determine mission configuration for future payloads for Spacelab missions and space plasma physics experiments working group
Period *Obligations*
06/14/82-06/13/83 FY82: \$91,996 TOTAL: \$91,996
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, S. T. MSFC/Richards, L. O. 31-Atmos Sci

NAS 8-34187 University of Alabama - Huntsville 1058
Geostationary platform workshop
Period *Obligations*
09/02/80-07/31/82 FY82: TOTAL: \$43,662
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carter, E. MSFC/Carey, W. T. 19-Phys Sci, NEC

NAS 8-34957 University of Alabama - Huntsville 1065
Mercury-cadmium-telluride crystal growth studies
Period *Obligations*
09/01/82-09/15/83 FY82: \$72,579 TOTAL: \$72,579
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holland, L. R. MSFC/Lehoczky, S. L. 13-Physics
MSFC/Szofran, F. R.

NAS 8-34338 University of Alabama - Huntsville 1059
Analysis of silicon solar cell and non-metallic materials space environmental effects data
Period *Obligations*
03/19/81-01/18/82 FY82: TOTAL: \$19,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wagner, P. E. MSFC/Whitaker, A. F. 47-Materials Engr
MSFC/Little, S.

NGT 01-002-081 University of Alabama - Huntsville 1066
Modeling of the evolution of magnetic field structure in an active region
Period *Obligations*
09/01/80-08/31/83 FY82: \$10,000 TOTAL: \$28,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, S. T. HQ-LB/Carter, C. H. 19-Phys Sci, NEC

NAS 8-34530 University of Alabama - Huntsville 1060
Materials processing in low gravity program
Period *Obligations*
06/19/81-03/07/83 FY82: \$248,032 TOTAL: \$333,032
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Workman, G. L. MSFC/Reeves, F. A. 13-Physics

NGT 01-002-082 University of Alabama - Huntsville 1067
Correlations between auroral features and low-energy ion characteristics in the magnetosphere
Period *Obligations*
09/01/80-08/31/81 FY82: TOTAL: \$7,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horwitz, J. L. MSFC/Green, J. L. 13-Physics
HQ-LB/Carter, C. H.

NAS 8-34534 University of Alabama - Huntsville 1061
Assessment of the solar-terrestrial data base management system (DBMS)
Period *Obligations*
08/12/81-12/31/82 FY82: TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horwitz, J. L. MSFC/Green, J. L. 22-Computer Science
MSFC/Baugher, C.

NGT 01-002-083 University of Alabama - Huntsville 1068
Graduate student researchers program
Period *Obligations*
09/01/80-08/31/81 FY82: TOTAL: \$7,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Karr, G. R. MSFC/Urban, E. W. 46-Mech Engr
HQ-LB/Carter, C. H.

**NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)**

NGT 01-002-803 University of Alabama - Huntsville 1069
Graduate student researchers program
Period *Obligations*
06/01/82-05/31/83 FY82: \$10,800 TOTAL: \$10,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Young, R. B. HQ-LB/Carter, C. H. 51-Biological Sci

NGT 01-002-804 University of Alabama - Huntsville 1070
Graduate student researchers program
Period *Obligations*
06/01/82-05/31/83 FY82: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horowitz, J. L. HQ-LB/Carter, C. H. 13-Physics

NGT 01-008-021 University of Alabama - Huntsville 1071
Summer faculty fellowship program
Period *Obligations*
01/01/76-12/31/82 FY82: TOTAL: \$586,624
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Karr, G. R. HQ-LB/Carter, C. H. 49-Engr, NEC

NGT 01-008-800 University of Alabama - Huntsville 1072
Graduate student researchers program
Period *Obligations*
06/01/81-05/31/82 FY82: \$10,000 TOTAL: \$18,350
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horowitz, J. L. HQ-LB/Carter, C. H. 13-Physics

NGT 01-008-801 University of Alabama - Huntsville 1073
Graduate student researchers program
Period *Obligations*
04/01/81-05/31/83 FY82: TOTAL: \$8,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horowitz, J. L. HQ-LB/Carter, C. H. 13-Physics

NGT 01-008-802 University of Alabama - Huntsville 1074
Graduate student researchers program
Period *Obligations*
09/01/81-08/31/83 FY82: \$10,000 TOTAL: \$18,630
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregory, J. C. HQ-LB/Carter, C. H. 13-Physics

NAS 8-33507 University of Alabama - University 1075
Space Shuttle induced environment contamination monitor (IECM) air sampler experiment
Period *Obligations*
05/21/79-03/23/83 FY82: \$3,000 TOTAL: \$39,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bertsch, W. MSFC/Peters, P. N. 31-Atmos Sci
Zatko, D. A. MSFC/Hester, H. B.

NAS 8-34724 University of Alabama - University 1076
Graphite formation in cast iron
Period *Obligations*
02/08/82-02/07/83 FY82: \$32,000 TOTAL: \$32,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stefanescu, D. M. MSFC/Reeves, F. A. 47-Materials Engr
MSFC/Williams, J. R.

NGT 01-002-099 University of Alabama - University 1077
Summer faculty fellowship program in research
Period *Obligations*
01/01/78-03/31/83 FY82: \$331,059 TOTAL: \$677,159
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barfield, B. F. HQ-LB/Carter, C. H. 49-Engr, NEC

NGT 01-002-800 University of Alabama - University 1078
Graduate student researchers program
Period *Obligations*
06/01/81-05/31/83 FY82: \$13,000 TOTAL: \$25,820
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Desmet, D. J. HQ-LB/Carter, C. H. 11-Astronomy

ALASKA

NAS 9-16719 Alaska Pacific University 1079
Research and development to devise a climate vegetation gradient model
Period *Obligations*
08/26/82-09/01/83 FY82: \$2,950 TOTAL: \$2,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ingram, J. JSC/Demel, K. J. 32-Geological Sci

NAG 6-1 University of Alaska - Fairbanks 1080
Fluorescent plasma tracer and perturbation experiments from sounding rockets
Period *Obligations*
01/01/80-12/31/82 FY82: \$159,964 TOTAL: \$248,614
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wescott, E. M. GSFC/Early, L. J. 19-Phys Sci, NEC
WFC/Pless, R. H.

NAGW 269 University of Alaska - Fairbanks 1081
Numerical simulation of the turbulent cascade and voltage amplification mechanism in the magnetosphere
Period *Obligations*
01/01/82-12/31/82 FY82: \$29,992 TOTAL: \$29,992
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Swift, D. W. HQ-EZ/Mayr, H. G. 19-Phys Sci, NEC
HQ-EZ/Schmerling, E. R.

NAS 5-26868 University of Alaska - Fairbanks 1082
Modeling of the atmosphere-magnetosphere ionosphere system (MAMI)
Period *Obligations*
04/26/82-07/26/83 FY82: \$29,000 TOTAL: \$29,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rees, M. H. GSFC/O'Brien, J. 13-Physics

NAS 6-3065 University of Alaska - Fairbanks 1083
S/M and personnel for the operation and maintenance of the Poker Flat research range
Period *Obligations*
11/01/79-10/31/82 FY82: \$1,010,495 TOTAL: \$2,889,422
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, N. B. GSFC/Milliner, C. F. 31-Atmos Sci
Roederer, J. G. GSFC/Gray, J. W.

**NASA'S UNIVERSITY PROGRAM
ALASKA (Continued)**

NCA 2-20002 University of Alaska - Fairbanks 1084
 Enhancement of LANDSAT data for the analysis of Subarctic wetlands

<i>Period</i>	<i>Obligations</i>	
08/15/80-12/31/81	FY82: \$2,460	TOTAL: \$25,965
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
George, T. H.	ARC/Wilson, D. E.	39-Env Sci, NEC

NCA 2-20201 University of Alaska - Fairbanks 1085
 Evaluation of LANDSAT MSS spectral data for reconnaissance wetlands mapping in interior Alaska

<i>Period</i>	<i>Obligations</i>	
06/01/82-12/31/82	FY82: \$18,468	TOTAL: \$18,468
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
George, T. H.	ARC/Wilson, D. E.	32-Geological Sci

NCA 2-20902 University of Alaska - Fairbanks 1086
 Regulation of nutrient availability and plant nutrient uptake in controlled environments

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY82:	TOTAL: \$17,302
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bloom, A. J.	ARC/MacElroy, R. D.	51-Biological Sci

NGL 02-001-092 University of Alaska - Fairbanks 1087
 Application of remote sensing data to surveys of the Alaskan environment

<i>Period</i>	<i>Obligations</i>	
07/26/72-06/30/82	FY82:	TOTAL: \$975,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, J. M.	HQ-EL/Tuyahon, A. J.	39-Env Sci, NEC

NSG 5219 University of Alaska - Fairbanks 1088
 Auroral spectroscopy using atmosphere Explorer observations

<i>Period</i>	<i>Obligations</i>	
10/01/77-06/30/82	FY82:	TOTAL: \$72,747
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rees, M. H.	GSFC/Spencer, N. W.	13-Physics

NSG 5409 University of Alaska - Fairbanks 1089
 Study of magnetopause/boundary layer and plasma sheet structures

<i>Period</i>	<i>Obligations</i>	
09/15/79-10/14/81	FY82:	TOTAL: \$50,173
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, L. C.	GSFC/Corrigan, J. P.	11-Astronomy

NSG 7281 University of Alaska - Fairbanks 1090
 A study of the relationship of the ring current and magnetospheric substorms

<i>Period</i>	<i>Obligations</i>	
10/01/76-03/31/83	FY82:	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Akasofu, S. I.	HQ-EZ/Taylor, W. W.	39-Env Sci, NEC
	HQ-EZ/Schmerling, E. R.	

NSG 7447 University of Alaska - Fairbanks 1091
 Study of the relationship between the ring current and magnetospheric substorms: Study of possible relationship of sudden stratospheric warmings with magnetospheric substorms

<i>Period</i>	<i>Obligations</i>	
06/01/78-06/30/83	FY82: \$49,012	TOTAL: \$223,391
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Akasofu, S. I.	HQ-EE/Lynch, J. T.	19-Phys Sci, NEC
	HQ-EE/Schmerling, E. R.	

NSG 7625 University of Alaska - Fairbanks 1092
 Numerical simulation of the turbulent cascade and voltage amplification mechanism in the magnetosphere

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swift, O. W.	HQ-EZ/Hedin, A. E.	19-Phys Sci, NEC
	HQ-EZ/Schmerling, E. R.	

ARIZONA

NAG 2-174 Arizona State University 1093
 Synthesis to single particle and surface textural Eolian data on Earth and Mars

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$15,996	TOTAL: \$15,996
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	ARC/Pollack, J. B.	32-Geological Sci
	ARC/Summers, A. L.	

NAG 3-6 Arizona State University 1094
 Transient response of rotor bearing systems using component mode synthesis

<i>Period</i>	<i>Obligations</i>	
01/01/80-05/30/83	FY82: \$29,993	TOTAL: \$166,567
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nelson, H. D.	LERC/Fleming, D. P.	46-Mech Engr
Rajan, M.	LERC/Kascak, A. F.	

NAG 3-112 Arizona State University 1095
 Parallel-processor simulation systems

<i>Period</i>	<i>Obligations</i>	
10/15/80-10/12/83	FY82: \$153,358	TOTAL: \$217,576
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
O'grady, E. P.	LERC/Krosel, S. M.	22-Computer Science
	LERC/Szuch, J. R.	

NAG 3-139 Arizona State University 1096
 NASA-ASU internship program

<i>Period</i>	<i>Obligations</i>	
12/22/80-12/30/82	FY82:	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wang, E. Y.	LERC/Weinberg, I.	13-Physics
Backus, C. M.	LERC/Brandhorst, H. W.	

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAG 3-167 **Arizona State University** **1097**
An improved turbulence modeling for gas turbine combustors
Period *Obligations*
06/01/81-05/31/83 **FY82:** **TOTAL: \$50,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mongia, H. C. LERC/Warner, C. J. 46-Mech Engr

NAGW 139 **Arizona State University** **1105**
Galilean satellite geomorphology
Period *Obligations*
02/01/81-02/01/83 **FY82:** **TOTAL: \$37,900**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Malin, M. HQ-EL/Boyce, J. M. 32-Geological Sci

NAG 3-252 **Arizona State University** **1098**
Evaluation of optical emission spectroscopy for sputtering rates
in ion thruster propulsion systems
Period *Obligations*
01/15/82-01/14/83 **FY82: \$50,000** **TOTAL: \$50,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parsons, M. L. LERC/Mantenieks, M. A. 13-Physics

NAGW 143 **Arizona State University** **1106**
Matrix phases of carbonaceous chondrites
Period *Obligations*
02/15/81-02/14/83 **FY82: \$70,000** **TOTAL: \$146,936**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buseck, P. R. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NAG 3-260 **Arizona State University** **1099**
Inhomogeneous swirling recirculating jets
Period *Obligations*
02/21/82-02/20/83 **FY82: \$88,549** **TOTAL: \$88,549**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
So, R. M. LERC/Claus, R. W. 41-Aero Engr
Mongia, H. C.

NAGW 182 **Arizona State University** **1107**
Phase equilibria in the Martian mantle
Period *Obligations*
04/01/81-03/31/83 **FY82: \$49,693** **TOTAL: \$98,189**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holloway, J. R. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAG 9-4 **Arizona State University** **1100**
Matrix phases of carbonaceous chondrites
Period *Obligations*
02/01/80-05/31/82 **FY82:** **TOTAL: \$70,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buseck, P. R. JSC/Dietrich, J. W. 32-Geological Sci

NAGW 245 **Arizona State University** **1108**
Hydrovolcanic explosions: Water melt interactions and resultant
dispersol patterns
Period *Obligations*
10/15/81-05/14/83 **FY82: \$26,309** **TOTAL: \$26,309**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sheridan, M. F. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAGW 1 **Arizona State University** **1101**
Planetary and Mars geomorphology
Period *Obligations*
02/01/80-01/31/83 **FY82: \$107,200** **TOTAL: \$209,300**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Malin, M. C. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAGW 263 **Arizona State University** **1109**
The determination of Martian surface properties and processes
from Viking IRTM observations
Period *Obligations*
12/15/81-12/14/82 **FY82: \$66,988** **TOTAL: \$66,988**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greeley, R. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 24 **Arizona State University** **1102**
Aggregate formation and Aeolian action on Mars
Period *Obligations*
04/15/80-04/14/83 **FY82: \$17,939** **TOTAL: \$57,889**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krinsley, D. HQ-EL/Boyce, J. M. 32-Geological Sci

NAS 8-32357 **Arizona State University** **1110**
Building and obstacles wakes
Period *Obligations*
02/11/77-06/20/81 **FY82:** **TOTAL: \$99,232**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Logan, E., Jr. MSFC/Alexander, M. B. 31-Atmos Sci
MSFC/Camp, D.

NAGW 56 **Arizona State University** **1103**
Impact cratering experiments
Period *Obligations*
04/01/80-09/30/81 **FY82: \$44,000** **TOTAL: \$67,111**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greeley, R. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/French, B. M.

NAS 8-32937 **Arizona State University** **1111**
The effect of a dispersed second phase on the ionic conductivity
of solid state electrolytes
Period *Obligations*
12/13/77-12/13/82 **FY82:** **TOTAL: \$201,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wagner, J. B. MSFC/Reeves, F. A. 47-Materials Engr
MSFC/Rathz, T.

NAGW 132 **Arizona State University** **1104**
Geological studies of the Galilean satellite
Period *Obligations*
02/01/81-01/31/83 **FY82: \$93,979** **TOTAL: \$175,725**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greeley, R. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

**NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)**

NAS 8-34318 Arizona State University 1112
 Research study: Building and obstacles wakes
Period Obligations
 08/25/81-08/24/82 FY82: TOTAL: \$13,000
Prin. Invest. NASA Tech. Officer CASE Category
 Logan, E., Jr. MSFC/Alexander, M. B. 31-Atmos Sci

NSG 7040 Arizona State University 1119
 The origin and early evolution of the solar system
Period Obligations
 04/01/74-03/31/83 FY82: \$74,599 TOTAL: \$425,627
Prin. Invest. NASA Tech. Officer CASE Category
 Larimer, J. W. HQ-EL/Taylor, L. A. 32-Geological Sci
 HQ-EL/Quaide, W. L.

NCA 2-35001 Arizona State University 1113
 Size-frequency analysis of simulated Martian Aeolian silt and clay
Period Obligations
 07/01/80-06/30/82 FY82: TOTAL: \$41,840
Prin. Invest. NASA Tech. Officer CASE Category
 Krinsley, D. ARC/Pollack, J. B. 32-Geological Sci
 Greeley, R.

NSG 7255 Arizona State University 1120
 The nature and origin of organic compounds in carbonaceous meteorites
Period Obligations
 06/14/76-01/31/83 FY82: \$59,000 TOTAL: \$320,164
Prin. Invest. NASA Tech. Officer CASE Category
 Cronin, J. R. HQ-EB/Devincenzi, D. L. 32-Geological Sci
 Yuen, G. U.

NGL 03-001-001 Arizona State University 1114
 Development of improved procedures for sampling, characterizing and classifying meteorite specimens
Period Obligations
 04/16/63-02/28/83 FY82: \$10,000 TOTAL: \$427,704
Prin. Invest. NASA Tech. Officer CASE Category
 Moore, C. B. HQ-EL/Taylor, L. A. 32-Geological Sci
 HQ-EL/Quaide, W. L.

NSG 7415 Arizona State University 1121
 Geological studies in planetology
Period Obligations
 12/01/77-12/31/82 FY82: \$196,347 TOTAL: \$1,011,943
Prin. Invest. NASA Tech. Officer CASE Category
 Greeley, R. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/Holt, H. E.

NGT 03-001-800 Arizona State University 1115
 Graduate student researchers program
Period Obligations
 06/01/80-08/31/83 FY82: \$11,860 TOTAL: \$34,580
Prin. Invest. NASA Tech. Officer CASE Category
 Moore, C. B. HQ-LB/Carter, C. H. 12-Chemistry

NSG 7548 Arizona State University 1122
 Studies in Martian geology
Period Obligations
 03/01/79-12/31/82 FY82: \$90,000 TOTAL: \$408,142
Prin. Invest. NASA Tech. Officer CASE Category
 Greeley, R. HQ-EL/Boyce, J. M. 31-Atmos Sci
 HQ-EL/Holt, H. E.

NGT 03-001-801 Arizona State University 1116
 Graduate student researchers program
Period Obligations
 06/01/82-05/31/83 FY82: \$11,860 TOTAL: \$11,860
Prin. Invest. NASA Tech. Officer CASE Category
 Moore, C. B. HQ-LB/Carter, C. H. 13-Physics

NSG 7642 Arizona State University 1123
 Development of Martian terraced-ejecta deposits
Period Obligations
 10/01/79-02/28/81 FY82: TOTAL: \$29,556
Prin. Invest. NASA Tech. Officer CASE Category
 Sheridan, M. HQ-EL/Dwornik, S. E. 32-Geological Sci

NSG 2284 Arizona State University 1117
 Aeolian geology studies
Period Obligations
 12/01/77-02/28/83 FY82: \$33,840 TOTAL: \$200,133
Prin. Invest. NASA Tech. Officer CASE Category
 Greeley, R. ARC/Pollack, J. 19-Phys Sci, NEC

NAGW 355 Northern Arizona University 1124
 Photogeologic analysis of the JG-7 quadrangle of Ganymede
Period Obligations
 09/01/82-01/31/84 FY82: \$9,950 TOTAL: \$9,950
Prin. Invest. NASA Tech. Officer CASE Category
 Barnes, C. W. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/Holt, H. E.

NSG 3075 Arizona State University 1118
 Study of multiple jet array impingement heat transfer characteristics
Period Obligations
 09/01/75-09/29/83 FY82: \$170,000 TOTAL: \$543,000
Prin. Invest. NASA Tech. Officer CASE Category
 Florschuetz, L. W. LERC/Hippensteele, S. A. 41-Aero Engr
 Metzger, D. E. LERC/Gauntner, J. W.

NAG 1-141 University of Arizona 1125
 Numerical study of large-eddy breakup and its effect on the drag characteristics on boundary layers
Period Obligations
 01/01/81-03/31/83 FY82: \$26,631 TOTAL: \$61,534
Prin. Invest. NASA Tech. Officer CASE Category
 Kinney, R. B. LARC/Hefner, J. N. 41-Aero Engr
 LARC/Bushnell, D. M.

**NASA'S UNIVERSITY PROGRAM
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NAG 2-52 University of Arizona 1126
The radial velocity search for extrasolar planets
Period Obligations
10/01/80-11/30/82 FY82: \$63,000 TOTAL: \$155,089
Prin. Invest. NASA Tech. Officer CASE Category
McMillan, R. ARC/Black, D. C. 11-Astronomy

NAG 2-55 University of Arizona 1127
The study of star formation and molecular cloud evolution with the Kuiper Airborne Observatory
Period Obligations
10/01/80-09/30/81 FY82: TOTAL: \$18,000
Prin. Invest. NASA Tech. Officer CASE Category
Thronson, H. ARC/Haughney, L. C. 11-Astronomy

NAG 2-64 University of Arizona 1128
Low temperature measurement of thermal expansion coefficient of mirror samples for shuttle infrared telescope facility (SIRTF)
Period Obligations
09/01/80-09/30/81 FY82: TOTAL: \$17,000
Prin. Invest. NASA Tech. Officer CASE Category
Jacobs, S. F. ARC/Hansen, Q. M. 19-Phys Sci, NEC
ARC/Brooks, W. F.

NAG 2-119 University of Arizona 1129
A review of Titan
Period Obligations
06/01/81-11/30/81 FY82: TOTAL: \$10,457
Prin. Invest. NASA Tech. Officer CASE Category
Hunten, D. M. ARC/Murphy, J. P. 31-Atmos Sci
ARC/Cuzzi, J.

NAG 2-136 University of Arizona 1130
Investigation of pyrex honeycomb mirror blanks
Period Obligations
10/01/81-04/30/82 FY82: \$13,613 TOTAL: \$13,613
Prin. Invest. NASA Tech. Officer CASE Category
Angel, J. R. ARC/Werner, M. W. 11-Astronomy

NAG 2-143 University of Arizona 1131
Participation in the Pioneer Venus mission
Period Obligations
10/01/81-10/31/82 FY82: \$45,000 TOTAL: \$45,000
Prin. Invest. NASA Tech. Officer CASE Category
Hunten, D. M. ARC/Fimmel, R. O. 19-Phys Sci, NEC

NAG 2-154 University of Arizona 1132
Development of low-background OC InSb detectors
Period Obligations
01/01/82-09/30/82 FY82: \$11,995 TOTAL: \$11,995
Prin. Invest. NASA Tech. Officer CASE Category
Low, F. J. ARC/McCreight, C. R. 11-Astronomy
Young, E. T. ARC/Goebel, J. H.

NAG 2-161 University of Arizona 1133
New techniques of fabricating lightweight glass mirrors
Period Obligations
01/01/82-12/31/82 FY82: \$74,700 TOTAL: \$74,700
Prin. Invest. NASA Tech. Officer CASE Category
Angel, J. R. ARC/Werner, W. 12-Chemistry
Woolf, N. J.

NAG 3-41 University of Arizona 1134
The application of probabilistic design theory to high temperature low cycle fatigue
Period Obligations
06/01/80-05/29/83 FY82: \$45,135 TOTAL: \$119,504
Prin. Invest. NASA Tech. Officer CASE Category
Wirsching, P. H. LERC/Ensign, C. R. 47-Materials Engr

NAG 3-45 University of Arizona 1135
NASA/Lewis Research Center computational structures apprenticeships
Period Obligations
05/01/80-09/30/82 FY82: \$22,355 TOTAL: \$177,465
Prin. Invest. NASA Tech. Officer CASE Category
Gallagher, R. H. LERC/Chamis, C. C. 41-Aero Engr
Kamel, H. A. LERC/Johns, R. H.
Heinrich, J. C.

NAG 5-38 University of Arizona 1136
Study of the hottest white dwarfs from the Palomar-Green study
Period Obligations
04/01/80-09/30/83 FY82: \$31,100 TOTAL: \$57,305
Prin. Invest. NASA Tech. Officer CASE Category
Green, R. F. GSFC/Kondo, Y. 11-Astronomy
Liebert, J. W.
Elvis, M.

NAG 5-143 University of Arizona 1137
Solar diameter measurements for study of Sun climate coupling
Period Obligations
06/01/81-11/30/82 FY82: \$15,000 TOTAL: \$43,000
Prin. Invest. NASA Tech. Officer CASE Category
Hill, H. A. GSFC/Wolfe, C. L. 31-Atmos Sci

NAG 5-196 University of Arizona 1138
Spectroradiometric considerations for advanced land observation systems
Period Obligations
07/01/81-05/31/83 FY82: \$29,425 TOTAL: \$57,417
Prin. Invest. NASA Tech. Officer CASE Category
Slater, P. N. GSFC/Cressy, P. J., Jr. 13-Physics
GSFC/Barnes, W. L.

NAG 5-221 University of Arizona 1139
Lyman continuum observations of broad absorption line quasi-stellar objects
Period Obligations
02/15/82-02/14/83 FY82: \$8,983 TOTAL: \$8,983
Prin. Invest. NASA Tech. Officer CASE Category
Turnshek, D. A. GSFC/Boggess, A. 11-Astronomy

NAG 5-264 University of Arizona 1140
Ultraviolet/optical/infrared observations of broad line radio galaxies
Period Obligations
08/15/82-08/14/83 FY82: \$7,000 TOTAL: \$7,000
Prin. Invest. NASA Tech. Officer CASE Category
Puetter, R. C. GSFC/Kondo, Y. 11-Astronomy
Rudy, R. J.

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NAG 8-321 **University of Arizona** **1141**
The X-ray properties of well-studied intermediate and large redshift quasi stellar objects: A pilot study

<i>Period</i>	<i>Obligations</i>	
03/10/80-03/10/82	FY82:	TOTAL: \$4,076
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strittmatter, P. A.	MSFC/Jones, J. B.	11-Astronomy
Smith, M. G.		
Condon, J. J.		

NAG 8-370 **University of Arizona** **1142**
The X-ray properties of close pairs of galaxies and low spectral resolution optical survey of the HEAO-B high resolution imager and imaging proportional counter fields

<i>Period</i>	<i>Obligations</i>	
08/15/80-10/05/82	FY82: \$11,890	TOTAL: \$29,079
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stocke, J. T.	MSFC/Stone, J. F.	11-Astronomy

NAG 8-380 **University of Arizona** **1143**
Survey of bright (PG) quasars

<i>Period</i>	<i>Obligations</i>	
08/22/80-09/22/82	FY82:	TOTAL: \$8,623
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Green, R.	MSFC/Stone, J. F.	11-Astronomy

NAG 8-387 **University of Arizona** **1144**
A search for an X-ray halo in Abell 2255

<i>Period</i>	<i>Obligations</i>	
12/08/80-12/31/82	FY82: \$19,544	TOTAL: \$23,393
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scott, J.	MSFC/Stone, J. F.	11-Astronomy
Holman, G. D.		

NAG 8-402 **University of Arizona** **1145**
Search for X-rays from knots in irregular galaxies

<i>Period</i>	<i>Obligations</i>	
06/15/81-01/14/83	FY82:	TOTAL: \$6,292
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tapia, S.	MSFC/Stone, J. F.	11-Astronomy
Lebofski, M. J.		
Charles, P.		

NAG 8-403 **University of Arizona** **1146**
Observations of very hot white dwarfs with Einstein

<i>Period</i>	<i>Obligations</i>	
06/15/81-06/07/83	FY82:	TOTAL: \$3,575
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebert, J. W.	MSFC/Stone, J. F.	11-Astronomy
Green, R. F.		
Shipman, H. L.		

NAG 8-442 **University of Arizona** **1147**
Optical spectral identification of serendipitous sources found with HEAO-B

<i>Period</i>	<i>Obligations</i>	
09/15/82-09/14/83	FY82: \$15,680	TOTAL: \$15,680
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stocke, J. T.	MSFC/Stone, J. F.	11-Astronomy
Liebert, J. W.		

NAGW 55 **University of Arizona** **1148**
Absorption of sunlight in the atmosphere of Venus

<i>Period</i>	<i>Obligations</i>	
01/01/80-04/30/82	FY82:	TOTAL: \$109,952
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tomasko, M.	HQ-EL/Brinton, H. C.	41-Aero Engr

NAGW 67 **University of Arizona** **1149**
Investigation of the chemical dynamics of the Venus atmosphere

<i>Period</i>	<i>Obligations</i>	
06/01/80-06/30/83	FY82: \$32,336	TOTAL: \$97,362
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sil, G. T.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAGW 121 **University of Arizona** **1150**
A program of innovative research in optic and electro-optics for space astronomy

<i>Period</i>	<i>Obligations</i>	
11/15/80-11/14/82	FY82:	TOTAL: \$190,929
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Angel, J. R.	HQ-EP/Taylor, T.	11-Astronomy
Stockman, H. S.	HQ-EP/Heninger, L. W.	
Woolf, H. J.		

NAGW 124 **University of Arizona** **1151**
Studies of X-ray clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
10/01/80-10/31/82	FY82: \$17,991	TOTAL: \$36,636
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scott, J. S.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
Holman, G. D.	HQ-EZ/Opp, A. G.	

NAGW 134 **University of Arizona** **1152**
The relaxation of craters in ice

<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/83	FY82: \$32,890	TOTAL: \$60,753
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woronow, A.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAGW 135 **University of Arizona** **1153**
Geologic investigations of Io, Ganymede and Callisto

<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/83	FY82: \$38,454	TOTAL: \$77,098
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strom, R.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAGW 149 **University of Arizona** **1154**
Support for preparation of planetary science and the lunar and planetary laboratory book on Venus

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82:	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hunten, D. M.	HQ-EL/Brinton, H. C.	31-Atmos Sci

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NAGW 157	University of Arizona	1155			
Study of the interaction of the Jovian magnetosphere with the rings and the Galilean satellites					
<i>Period</i>		<i>Obligations</i>			
03/15/81-03/14/83	FY82: \$30,000	TOTAL: \$60,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hood, L. L.	HQ-EE/Lynch, J. T.	13-Physics			
	HQ-EL/Evans, N.				
NAGW 192	University of Arizona	1156			
Higher-order gravity field at Jupiter					
<i>Period</i>		<i>Obligations</i>			
04/15/81-04/14/83	FY82: \$55,299	TOTAL: \$99,994			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hubbard, W. B.	HQ-EL/Quaide, W. L.	32-Geological Sci			
	HQ-EL/Boyce, J. M.				
NAGW 220	University of Arizona	1157			
Meteorite basalts					
<i>Period</i>		<i>Obligations</i>			
09/01/81-02/28/83	FY82: \$10,026	TOTAL: \$35,816			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Drake, M. J.	HQ-EL/Taylor, L. A.	32-Geological Sci			
	HQ-EL/Quaide, W. L.				
NAGW 224	University of Arizona	1158			
Speckle interferometry applied to asteroid and other solar system objects					
<i>Period</i>		<i>Obligations</i>			
08/01/81-07/01/83	FY82: \$34,990	TOTAL: \$72,439			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hege, E. K.	HQ-EL/Brunk, W. E.	11-Astronomy			
	HQ-EL/Brinton, H. C.				
NAGW 227	University of Arizona	1159			
Skeletal muscle metabolism in hypokinetic rats					
<i>Period</i>		<i>Obligations</i>			
07/01/81-11/30/83	FY82: \$38,788	TOTAL: \$63,788			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tischler, M.	HQ-EB/Halstead, T. W.	51-Biological Sci			
NAGW 248	University of Arizona	1160			
Design study of entry probe spectro reflectometer					
<i>Period</i>		<i>Obligations</i>			
10/01/81-09/30/82	FY82: \$57,110	TOTAL: \$57,110			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sill, G.	HQ-EL/Brinton, H. C.	11-Astronomy			
	HQ-EL/Quaide, W. L.				
NAGW 262	University of Arizona	1161			
Development of a clean optical telescope					
<i>Period</i>		<i>Obligations</i>			
12/15/81-11/14/82	FY82: \$29,088	TOTAL: \$29,088			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brown, R. A.	HQ-EL/Brunk, W. E.	31-Atmos Sci			
	HQ-EL/Brinton, H. C.				
NAGW 285	University of Arizona	1162			
Hydrogeomorphic studies of Mars					
<i>Period</i>		<i>Obligations</i>			
01/15/82-01/14/83	FY82: \$40,000	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Baker, V.	HQ-EL/Boyce, J. M.	32-Geological Sci			
	HQ-EL/Holt, H. E.				
NAGW 331	University of Arizona	1163			
Optical spectrometer to measure atmospheric composition from entry probes					
<i>Period</i>		<i>Obligations</i>			
05/01/82-04/30/83	FY82: \$50,000	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tomasko, M.	HQ-EL/Brinton, H. C.	31-Atmos Sci			
	HQ-EL/Brunk, W. L.				
NAGW 338	University of Arizona	1164			
Effects of muscle atrophy on motor control					
<i>Period</i>		<i>Obligations</i>			
06/01/82-05/30/83	FY82: \$39,947	TOTAL: \$39,947			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Stuart, D. G.	HQ-EB/Halstead, T. W.	51-Biological Sci			
NAGW 340	University of Arizona	1165			
Origin and evolution of planetary atmospheres					
<i>Period</i>		<i>Obligations</i>			
07/01/82-06/30/83	FY82: \$40,000	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Lewis, J. S.	HQ-EL/Brinton, H. C.	31-Atmos Sci			
	HQ-EL/Brunk, W. E.				
NAGW 357	University of Arizona	1166			
Muscle contractility and protein turnover					
<i>Period</i>		<i>Obligations</i>			
06/01/82-05/30/83	FY82: \$2,000	TOTAL: \$2,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tischler, M. E.	HQ-EB/Halstead, T. W.	51-Biological Sci			
NAS 1-14332	University of Arizona	1167			
Stratospheric aerosol measurement experiment					
<i>Period</i>		<i>Obligations</i>			
03/19/76-06/30/81	FY82:	TOTAL: \$130,167			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Herman, B. M.	LARC/McCormick, M. P.	31-Atmos Sci			
	LARC/McMaster, L. R.				
NAS 2-6265	University of Arizona	1168			
Imaging photopolarimeter experiment data analysis Pioneer 10 and 11					
<i>Period</i>		<i>Obligations</i>			
11/01/70-03/31/82	FY82:	TOTAL: \$2,557,629			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gehrels, A. M.	ARC/Hall, C. F.	11-Astronomy			
	ARC/Porter, D. L.				

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NAS 2-10436	University of Arizona	1169			
15 UM detectors for shuttle infrared telescope facility					
<i>Period</i>	<i>Obligations</i>				
11/01/79-12/31/80	FY82:	TOTAL: \$15,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Davidson, A.	ARC/McCreight, C. R.	11-Astronomy			
NAS 2-10890	University of Arizona	1170			
Operation and maintenance of the NASA-owned 1.5 meter telescope located at Mt. Lemmon, Arizona					
<i>Period</i>	<i>Obligations</i>				
01/01/81-12/31/82	FY82: \$101,959	TOTAL: \$200,686			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Larson, H. P.	ARC/Haughney, L. C. ARC/Gillespie, C. M.	11-Astronomy			
NAS 2-10903	University of Arizona	1171			
Mirror technology development					
<i>Period</i>	<i>Obligations</i>				
03/02/81-09/15/81	FY82:	TOTAL: \$48,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Parks, R. E.	ARC/Hansen, Q. M. ARC/Melugin, R. K.	42-Astro Engr			
NAS 5-25484	University of Arizona	1172			
Support to the space telescope wide field planetary camera development team					
<i>Period</i>	<i>Obligations</i>				
02/01/79-10/31/82	FY82: \$22,856	TOTAL: \$115,820			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Smith, B. A.	GSFC/Fellerman, K.	31-Atmos Sci			
NAS 5-25733	University of Arizona	1173			
Space telescope/high resolution spectrograph (HRS) extragalactic studies					
<i>Period</i>	<i>Obligations</i>				
06/18/79-04/01/85	FY82: \$4,000	TOTAL: \$9,781			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Weymann, R. J.	GSFC/Vitagliano, H. D.	11-Astronomy			
NAS 5-25955	University of Arizona	1174			
Scientific activities of the high resolution ultraviolet spectrometer and polarimeter for the Solar Maximum Mission					
<i>Period</i>	<i>Obligations</i>				
11/14/79-02/28/83	FY82:	TOTAL: \$12,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Beckers, J. M.	GSFC/Schmadabeck, R. GSFC/Woodgate, B. E.	11-Astronomy			
NAS 5-26176	University of Arizona	1175			
Solar diameter measurements for study of Sun climate coupling					
<i>Period</i>	<i>Obligations</i>				
06/04/80-06/04/81	FY82:	TOTAL: \$26,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hill, H. A.	GSFC/Wolff, C. L.	31-Atmos Sci			
NAS 5-26575	University of Arizona	1176			
Development of a new class of liquid helium cooled Fabry Perot interference filter					
<i>Period</i>	<i>Obligations</i>				
04/29/81-11/29/83	FY82: \$38,000	TOTAL: \$80,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Low, F. J. Nishimura, N.	GSFC/Arens, J. F. GSFC/Heaney, J. B.	11-Astronomy			
NAS 5-26869	University of Arizona	1177			
Origin of plasmas in the Earth's neighborhood (OPEN) mission					
<i>Period</i>	<i>Obligations</i>				
05/14/82-08/14/83	FY82: \$29,000	TOTAL: \$29,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sonett, C. P.	GSFC/O'Brien, J.	13-Physics			
NAS 8-31948	University of Arizona	1178			
Automated analytical electrophoresis apparatus					
<i>Period</i>	<i>Obligations</i>				
05/17/76-12/31/82	FY82: \$6,614	TOTAL: \$305,919			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bartels, P. H.	MSFC/Snyder, R. S. MSFC/Nerren, B. H.	59-Life Sci, NEC			
NAS 8-32950	University of Arizona	1179			
Hormone purification by isoelectric focusing in space					
<i>Period</i>	<i>Obligations</i>				
03/29/78-12/31/83	FY82: \$130,000	TOTAL: \$437,800			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bier, M.	MSFC/Moore, W. W., Jr.	59-Life Sci, NEC			
NAS 8-33718	University of Arizona	1180			
Lightning detection from space					
<i>Period</i>	<i>Obligations</i>				
02/11/80-09/30/82	FY82:	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Krider, P.	MSFC/Wagnon, F. W. MSFC/Harper, J. W.	49-Engr, NEC			
NAS 8-33720	University of Arizona	1181			
Conceptual design study of lightning optical/sensor systems					
<i>Period</i>	<i>Obligations</i>				
02/07/80-10/31/81	FY82:	TOTAL: \$125,627			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wolfe, W. L.	MSFC/Barnes, T. G. MSFC/Reinbolt, E. J.	49-Engr, NEC			
NAS 8-33815	University of Arizona	1182			
Computer studies of baroclinic stability in spherical geometry					
<i>Period</i>	<i>Obligations</i>				
03/07/80-05/31/83	FY82: \$26,000	TOTAL: \$75,185			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Gall, R. L.	MSFC/Fowles, W. W. MSFC/Smith, G. T.	31-Atmos Sci			

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NAS 8-34734	University of Arizona	1183	NCA 2-40101	University of Arizona	1191
The optical characteristics of lightning			Optimization of a cryogenic grating spectrometer		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$20,250	TOTAL: \$20,250	05/01/81-04/30/82	FY82:	TOTAL: \$8,709
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Krider, E. P.	MSFC/Christian, H. J.	31-Atmos Sci	Thompson, R. I.	ARC/Erickson, E. F.	11-Astronomy
	MSFC/Vaughan, O. H.				
NAS 9-16268	University of Arizona	1184	NGL 03-002-002	University of Arizona	1192
Study of cellular immune response			Planetary, spectroscopic, selenodetic and physical studies of lunar surface		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
02/01/81-09/30/82	FY82: \$14,800	TOTAL: \$56,800	08/12/61-05/31/83	FY82: \$71,971	TOTAL: \$3,019,466
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Criswell, B. S.	JSC/Taylor, G. R.	56-Medical Sciences	Smith, J. C.	HQ-EL/Brunk, W. E.	11-Astronomy
				HQ-EL/Brinton, H. C.	
NASW 3413	University of Arizona	1185	NGL 03-002-081	University of Arizona	1193
Colloquim and book on comets			Photometry and polarimetry of minor planets		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
11/01/80-10/31/81	FY82:	TOTAL: \$15,267	03/14/66-09/30/82	FY82: \$44,655	TOTAL: \$593,457
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilkening, L. L.	HQ-EL/Brunk, W. E.	11-Astronomy	Gehrels, T.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Murphy, R. E.			HQ-EL/Brinton, H. C.	
NASW 3454	University of Arizona	1186	NGL 03-002-313	University of Arizona	1194
Design study for a scanning facility for Earth crossing asteroids			Remote sensing applications for state and local government		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/16/80-02/15/83	FY82: \$183,561	TOTAL: \$578,719	03/07/72-02/28/83	FY82: \$145,000	TOTAL: \$1,245,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gehrels, T.	HQ-EL/Brunk, W. E.	11-Astronomy	Johnson, J. D.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC
	HQ-EL/Brinton, H. C.				
NASW 3627	University of Arizona	1187	NGR 03-002-107	University of Arizona	1195
Comet Halley neutral gas experiment			Basic research in astrophysics and space science		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$50,000	TOTAL: \$50,000	09/01/67-09/30/82	FY82:	TOTAL: \$758,063
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hsieh, K. C.	HQ-EL/Brunk, W. E.	11-Astronomy	Hsieh, K. C.	HQ-EZ/Mayr, H. G.	13-Physics
	HQ-EL/Brinton, H. C.			HQ-EZ/Schmerling, E. R.	
NASW 3655	University of Arizona	1188	NGR 03-002-171	University of Arizona	1196
Symposium and book on planet Saturn			Analysis of carbonaceous meteorites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/15/82-06/30/83	FY82: \$10,000	TOTAL: \$10,000	10/26/68-10/31/82	FY82: \$54,000	TOTAL: \$742,884
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gehrels, T.	HQ-EL/Brunk, W. E.	11-Astronomy	Nagy, B.	HQ-EB/Devincenzi, D. L.	32-Geological Sci
	HQ-EL/Brinton, H. C.				
NAS10-10082	University of Arizona	1189	NGR 03-002-219	University of Arizona	1197
Thunderstorm research using KSC-USAF electric field measuring system and its operational utilization at KSC			Photopolarimetry of Mercury, Mars, and satellites		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/81-02/28/82	FY82:	TOTAL: \$45,030	02/13/70-11/30/82	FY82: \$39,233	TOTAL: \$463,752
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Krider, E. P.	KSC/Dietz, W. R.	31-Atmos Sci	Gehrels, A. M.	HQ-EL/Brunk, W. E.	11-Astronomy
				HQ-EL/Brinton, H. C.	
NAS13-198	University of Arizona	1190			
Environmental sampling for monitoring range land conditions					
<i>Period</i>	<i>Obligations</i>				
05/26/82-05/25/83	FY82: \$33,875	TOTAL: \$33,875			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hutchinson, C. F.	NSTL/Musick, H. B.	32-Geological Sci			

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NGR 03-002-269	University of Arizona	1198
Operation of a 30 cm flying infrared telescope		
<i>Period</i>	<i>Obligations</i>	
05/04/71-07/30/83	FY82: TOTAL: \$788,510	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Low, F. J.	HQ-EZ/Boggess, N. B.	11-Astronomy
	HQ-EZ/Weiler, E. J.	
NGR 03-002-332	University of Arizona	1199
Infrared spectroscopy of the planets from 1-5.6 micron with the medium-resolution LPL Fourier interferometer		
<i>Period</i>	<i>Obligations</i>	
03/05/73-10/31/82	FY82: \$116,506 TOTAL: \$853,367	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Larson, H. P.	ARC/Haughney, L. C.	11-Astronomy
NGR 03-002-370	University of Arizona	1200
An investigation of electromagnetic processes in the early solar system with bearing on thermal evolution and fossil magnetism		
<i>Period</i>	<i>Obligations</i>	
10/01/73-01/31/83	FY82: \$96,507 TOTAL: \$426,233	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	
NGR 03-002-371	University of Arizona	1201
Far infrared observations of galactic and extra-galactic sources of radiation		
<i>Period</i>	<i>Obligations</i>	
09/01/73-11/30/82	FY82: \$105,000 TOTAL: \$645,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hoffman, W.	HQ-EZ/Boggess, N. W.	11-Astronomy
	HQ-EZ/Weiler, E. J.	
NGT 03-002-800	University of Arizona	1202
Graduate student training program in computational fluid dynamics		
<i>Period</i>	<i>Obligations</i>	
07/01/80-05/31/83	FY82: \$99,999 TOTAL: \$274,681	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fung, K. Y.	HQ-RT/Graves, R. A.	41-Aero Engr
NGT 03-002-801	University of Arizona	1203
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$13,000 TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Larson, H. P.	HQ-LB/Carter, C. H.	13-Physics
NSG 2381	University of Arizona	1204
Cytofluorometric analysis of viral infection		
<i>Period</i>	<i>Obligations</i>	
05/01/79-02/28/83	FY82: \$39,999 TOTAL: \$136,355	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meinke, W. J.	ARC/Mandel, A. D.	56-Medical Sciences
NSG 5235	University of Arizona	1205
Research of the ultraviolet spectra of T Tauri and related stars		
<i>Period</i>	<i>Obligations</i>	
02/19/78-10/31/81	FY82: TOTAL: \$11,208	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Imhoff, C. L.	GSFC/Boggess, A.	11-Astronomy
	Giampapa, M. S.	
NSG 7011	University of Arizona	1206
Radiation history of meteorites		
<i>Period</i>	<i>Obligations</i>	
03/01/74-02/28/83	FY82: \$30,495 TOTAL: \$335,377	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilkening, L. L.	HQ-EL/Taylor, L. A.	32-Geological Sci
	HQ-EL/Quaide, W. L.	
NSG 7020	University of Arizona	1207
Investigation of lunar induced and permanent magnetism in the lunar data analysis and synthesis program		
<i>Period</i>	<i>Obligations</i>	
03/01/74-01/31/82	FY82: \$29,999 TOTAL: \$822,142	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/French, B. E.	
NSG 7024	University of Arizona	1208
Study of the Earth's magnetosphere and solar wind		
<i>Period</i>	<i>Obligations</i>	
02/01/74-11/30/82	FY82: \$100,000 TOTAL: \$659,665	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sonett, C. P.	HQ-EZ/Lynch, J. T.	13-Physics
	HQ-EZ/Schmerling, E. R.	
NSG 7045	University of Arizona	1209
Interiors of the giant planets		
<i>Period</i>	<i>Obligations</i>	
04/01/74-03/31/83	FY82: \$36,400 TOTAL: \$306,344	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hubbard, W. B.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	
NSG 7070	University of Arizona	1210
Planetary spectroscopy		
<i>Period</i>	<i>Obligations</i>	
06/01/74-05/31/83	FY82: \$116,492 TOTAL: \$875,269	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fink, U. W.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	
NSG 7101	University of Arizona	1211
Study structure of astrophysical plasma and turbulent fluctuations		
<i>Period</i>	<i>Obligations</i>	
11/18/74-10/31/83	FY82: \$142,213 TOTAL: \$475,405	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jokipii, J. R.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

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NSG 7114 University of Arizona 1212
Infrared observations of the planets
Period Obligations
02/20/75-06/30/83 FY82: \$35,019 TOTAL: \$196,640
Prin. Invest. NASA Tech. Officer CASE Category
Rieke, G. H. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Brinton, H. C.

NSG 7485 University of Arizona 1219
Stratospheric aeronomy
Period Obligations
09/01/78-09/30/83 FY82: \$54,986 TOTAL: \$220,562
Prin. Invest. NASA Tech. Officer CASE Category
Hunten, D. H. HQ-EE/Watson, R. T. 31-Atmos Sci
HQ-EE/Hilsenrath, E.

NSG 7146 University of Arizona 1213
Geologic investigation of Mercury from Mariner 10 television data
Period Obligations
07/01/75-02/28/83 FY82: \$74,939 TOTAL: \$476,421
Prin. Invest. NASA Tech. Officer CASE Category
Strom, R. G. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NSG 7502 University of Arizona 1220
Asteroid population statistics
Period Obligations
09/01/78-08/31/82 FY82: \$30,248 TOTAL: \$111,809
Prin. Invest. NASA Tech. Officer CASE Category
Zellner, B. H. HQ-EL/Brunk, W. E. 11-Astronomy
Tedesco, E. F. HQ-EL/Brinton, H. C.

NSG 7249 University of Arizona 1214
High precision polarimetry of meteorites
Period Obligations
07/01/76-06/30/83 FY82: \$23,100 TOTAL: \$201,989
Prin. Invest. NASA Tech. Officer CASE Category
Zellner, B. H. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NSG 7544 University of Arizona 1221
Martian landforms response to geologic setting
Period Obligations
04/01/79-01/31/82 FY82: TOTAL: \$75,999
Prin. Invest. NASA Tech. Officer CASE Category
Woronow, A. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NSG 7333 University of Arizona 1215
Study of isoelectric focusing for proteins and peptide hormones in a microgravity environment
Period Obligations
04/01/79-03/31/85 FY82: \$225,000 TOTAL: \$1,374,967
Prin. Invest. NASA Tech. Officer CASE Category
Bier, M. HQ-EL/Tuyahov, H. J. 59-Life Sci, NEC

NSG 7558 University of Arizona 1222
Planetary aeronomy and related studies
Period Obligations
04/01/79-03/31/83 FY82: \$38,066 TOTAL: \$127,725
Prin. Invest. NASA Tech. Officer CASE Category
Hunten, D. M. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

NSG 7368 University of Arizona 1216
A deep near infrared photographic sky survey as a support tool for the infrared astronomical satellite
Period Obligations
06/15/77-07/14/83 FY82: \$37,467 TOTAL: \$176,166
Prin. Invest. NASA Tech. Officer CASE Category
Craine, E. R. HQ-EZ/Bogges, N. W. 11-Astronomy
HQ-EZ/Weiler, E. J.

NSG 7573 University of Arizona 1223
Scattering of light by ammonia crystals
Period Obligations
09/01/78-08/31/83 FY82: \$60,000 TOTAL: \$218,552
Prin. Invest. NASA Tech. Officer CASE Category
Tomasko, M. G. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

NSG 7419 University of Arizona 1217
Generation and behavior of solar system magnetic fields
Period Obligations
03/01/79-06/30/83 FY82: \$49,984 TOTAL: \$205,069
Prin. Invest. NASA Tech. Officer CASE Category
Levy, E. H. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NSG 7574 University of Arizona 1224
Optical photometry and polarimetry and confirmed counterparts for X-ray binary pulsars
Period Obligations
05/01/79-04/30/81 FY82: TOTAL: \$45,321
Prin. Invest. NASA Tech. Officer CASE Category
Tapia, S. F. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Bogges, N. W.

NSG 7436 University of Arizona 1218
Rare earths in inclusions from different classes of carbonaceous chondrites
Period Obligations
03/01/78-04/14/83 FY82: \$90,088 TOTAL: \$320,554
Prin. Invest. NASA Tech. Officer CASE Category
Boynton, W. V. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NSG 7576 University of Arizona 1225
Geochemical evolution of the Moon and igneous meteorites
Period Obligations
05/01/79-01/31/82 FY82: \$94,843 TOTAL: \$349,843
Prin. Invest. NASA Tech. Officer CASE Category
Drake, M. J. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/French, B. M.

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NSG 7577 **University of Arizona** **1226**
Terrestrial analog studies of relationships
Period *Obligations*
03/01/79-10/31/81 FY82: TOTAL: \$107,333
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Drake, M. J. HQ-EL/Quaide, W. L. 32-Geological Sci

NSG 7607 **University of Arizona** **1227**
Laboratory infrared reflectance studies
Period *Obligations*
05/01/79-07/31/82 FY82: TOTAL: \$62,612
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lebofsky, L. HQ-EL/Quaide, W. L. 32-Geological Sci

NSG 7634 **University of Arizona** **1228**
Studies of planetary extended atmospheres
Period *Obligations*
10/01/79-09/30/82 FY82: TOTAL: \$212,652
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, R. A. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Murphy, R. E.

ARKANSAS

NAG 5-20 **University of Arkansas - Fayetteville** **1229**
Measurement of soil moisture using remote sensing multisensor
transfer techniques
Period *Obligations*
03/01/80-10/31/82 FY82: TOTAL: \$125,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Halloran, J. W. GSFC/Schmugge, T. 39-Env Sci, NEC
Heuer, A. H.

NAG 9-3 **University of Arkansas - Fayetteville** **1230**
Analysis of geological terrain models for determination of
optimum SAR sensor configuration and optimum information
extraction for exploration of global non-renewable resources
Period *Obligations*
01/21/80-01/20/83 FY82: \$120,000 TOTAL: \$300,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacDonald, H. C. JSC/Duke, M. B. 32-Geological Sci

NAGW 296 **University of Arkansas - Fayetteville** **1231**
Unequilibrated ordinary chondrites
Period *Obligations*
03/01/82-02/28/83 FY82: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sears, D. W. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NAS 8-33224 **University of Arkansas - Fayetteville** **1232**
Space Shuttle environmental analysis statistical models
Period *Obligations*
05/07/79-08/31/81 FY82: TOTAL: \$27,640
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tubbs, J. D. MSFC/Smith, O. E. 31-Atmos Sci
MSFC/Brown, S. C.

NAS 8-34502 **University of Arkansas - Fayetteville** **1233**
Ascent winds
Period *Obligations*
07/24/81-07/23/83 FY82: \$45,291 TOTAL: \$65,291
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tubbs, J. D. MSFC/Smith, O. E. 31-Atmos Sci
MSFC/Brown, S. C.

NGL 04-001-007 **University of Arkansas - Fayetteville** **1234**
Application of lasers to instrumentation and measurement
techniques
Period *Obligations*
06/15/70-08/31/82 FY82: TOTAL: \$454,857
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ballard, G. S. ARC/Ragent, B. 41-Aero Engr

NAG 2-147 **University of Arkansas - Little Rock** **1235**
A feasibility study of the application of an airborne spectrophone
instrument for the measurement of aerosol light absorption
Period *Obligations*
12/01/81-11/30/82 FY82: \$29,883 TOTAL: \$29,883
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mazumder, M. K. ARC/Ragent, B. 31-Atmos Sci
Wilson, J. D.
McCleod, P. C.

CALIFORNIA

NAG 2-1 **California Institute of Technology** **1236**
Submillimeter line astronomy on the NASA 91.5 cm airborne
telescope
Period *Obligations*
10/01/79-04/30/83 FY82: \$45,000 TOTAL: \$209,676
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Phillips, T. G. ARC/Haughney, L. C. 11-Astronomy

NAG 2-125 **California Institute of Technology** **1237**
An experimental study of surface precision limits for machined-
panel submillimeter dishes
Period *Obligations*
07/15/81-06/30/82 FY82: TOTAL: \$34,272
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leighton, R. B. ARC/Werner, M. W. 11-Astronomy

NAG 2-194 **California Institute of Technology** **1238**
Visualization and control of vortex shedding from a cone at
high angles of attack
Period *Obligations*
09/01/82-08/31/83 FY82: \$25,250 TOTAL: \$25,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Culick, F. E. ARC/Peake, D. J. 41-Aero Engr
ARC/Davis, S.

**NASA'S UNIVERSITY PROGRAM
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NAG 3-70 California Institute of Technology 1239
 Non-steady combustion in burners for aircraft gas turbines
Period Obligations
 06/09/80-09/06/83 FY82: \$60,000 TOTAL: \$165,000
Prin. Invest. NASA Tech. Officer CASE Category
 Marble, F. E. LERC/Tacina, R. 41-Aero Engr
 Zukoski, E. E.
 Kubota, T.

NAG 3-179 California Institute of Technology 1240
 Instability of nonuniform flows
Period Obligations
 08/01/81-07/30/83 FY82: \$73,541 TOTAL: \$142,195
Prin. Invest. NASA Tech. Officer CASE Category
 Saffman, P. G. LERC/Durbin, P. A.
 29-Math/Cmputer,NEC

NAG 5-4 California Institute of Technology 1241
 Research on long exposure observations of extragalactic objects
Period Obligations
 03/01/80-08/31/83 FY82: \$23,877 TOTAL: \$56,061
Prin. Invest. NASA Tech. Officer CASE Category
 Sargent, W. L. GSFC/Kondo, Y. 11-Astronomy
 Malkan, M.

NAG 5-47 California Institute of Technology 1242
 Observations of emission in bright, low redshift quasars
Period Obligations
 04/28/80-05/27/82 FY82: \$6,400 TOTAL: \$27,700
Prin. Invest. NASA Tech. Officer CASE Category
 Soifer, B. T. GSFC/Boggess, A. 11-Astronomy

NAG 5-66 California Institute of Technology 1243
 Observations of selected Jovian atmospheric features
Period Obligations
 05/26/80-10/31/82 FY82: \$12,100 TOTAL: \$34,100
Prin. Invest. NASA Tech. Officer CASE Category
 Trauger, J. T. GSFC/Kondo, Y. 11-Astronomy
 Allen, M. A.
 Gladstone, G. R.

NAG 5-68 California Institute of Technology 1244
 Research of the stellar population of normal galaxies
Period Obligations
 06/01/80-11/30/82 FY82: \$10,000 TOTAL: \$38,600
Prin. Invest. NASA Tech. Officer CASE Category
 Cohen, J. G. GSFC/Kondo, Y. 11-Astronomy
 Oke, J. B.
 Persson, S. E.

NAG 5-250 California Institute of Technology 1245
 Observations of variable type 1 Seyfert galaxies
Period Obligations
 07/01/82-06/30/83 FY82: \$14,000 TOTAL: \$14,000
Prin. Invest. NASA Tech. Officer CASE Category
 Oke, J. B. GSFC/Kondo, Y. 11-Astronomy

NAG 8-324 California Institute of Technology 1246
 Determine location of High Energy Astronomical Observatory-A2 soft X-ray sources, mapping kilo electron volts diffuse features near galactic center
Period Obligations
 01/15/80-10/31/81 FY82: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
 Garmire, G. P. MSFC/Jones, J. B. 11-Astronomy

NAG 8-374 California Institute of Technology 1247
 A hot nearby white dwarf, identifying the bright soft X-ray sources found by HEAO-1, HRI observe of the point source in RCW 103
Period Obligations
 09/15/80-09/14/81 FY82: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
 Garmire, G. P. MSFC/Stone, J. F. 11-Astronomy

NAG 8-376 California Institute of Technology 1248
 IPC observations of interstellar bullets and IPC observations of a new type of extragalactic object found at infrared wave-lengths
Period Obligations
 09/22/80-01/21/82 FY82: TOTAL: \$10,210
Prin. Invest. NASA Tech. Officer CASE Category
 Pravdo, S. H. MSFC/Stone, J. F. 11-Astronomy

NAG 8-406 California Institute of Technology 1249
 HEAO observing time and support of research: Coordinated infrared, optical, ultraviolet, and X-ray observations of high-redshift quasars
Period Obligations
 06/15/81-06/07/82 FY82: TOTAL: \$7,612
Prin. Invest. NASA Tech. Officer CASE Category
 Sargent, W. L. MSFC/Stone, J. F. 11-Astronomy
 Malkan, M.

NAG 8-412 California Institute of Technology 1250
 A search for gamma-ray lines from the Virgo cluster
Period Obligations
 07/15/81-04/14/82 FY82: TOTAL: \$9,482
Prin. Invest. NASA Tech. Officer CASE Category
 Prince, T. A. MSFC/Stone, J. F. 11-Astronomy

NAG 8-430 California Institute of Technology 1251
 Near simultaneous observations of OVV quasars
Period Obligations
 03/15/82-03/14/83 FY82: \$1,788 TOTAL: \$1,788
Prin. Invest. NASA Tech. Officer CASE Category
 Moore, R. L. MSFC/Stone, J. F. 11-Astronomy

NAG 8-438 California Institute of Technology 1252
 Studies of solar gamma-ray bursts
Period Obligations
 07/01/82-06/30/83 FY82: \$20,360 TOTAL: \$20,360
Prin. Invest. NASA Tech. Officer CASE Category
 Zirin, H. MSFC/Stone, J. F. 11-Astronomy

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NAGW 58 California Institute of Technology 1253
Dynamics of planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
05/01/80-04/30/83	FY82: \$76,338	TOTAL: \$260,266
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hughes, W. J.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAGW 202 California Institute of Technology 1260
Sputtering processes near Jupiter and Saturn

<i>Period</i>	<i>Obligations</i>	
05/15/81-05/15/83	FY82: \$80,000	TOTAL: \$160,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haff, P. K.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NAGW 107 California Institute of Technology 1254
Development of InSb detectors for submillimeter astronomy

<i>Period</i>	<i>Obligations</i>	
11/01/80-11/30/83	FY82: \$67,930	TOTAL: \$266,977
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Phillips, T. G.	HQ-EZ/Boggess, N. W.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NAGW 205 California Institute of Technology 1261
Isentropic compression and decompression of outer solar system molecular materials

<i>Period</i>	<i>Obligations</i>	
06/01/81-06/30/83	FY82: \$96,000	TOTAL: \$192,086
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ahrens, T. J.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/French, B. M.	

NAGW 138 California Institute of Technology 1255
Crustal evolution of Ganymede and Callisto

<i>Period</i>	<i>Obligations</i>	
01/15/81-01/14/82	FY82: \$23,321	TOTAL: \$44,653
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shoemaker, E. M.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAGW 223 California Institute of Technology 1262
Sources sinks and variability of Mar's atmospheric water vapor

<i>Period</i>	<i>Obligations</i>	
07/01/81-09/30/83	FY82:	TOTAL: \$50,723
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Farmer, C. B.	HQ-EL/Murphy, R. E.	31-Atmos Sci

NAGW 148 California Institute of Technology 1256
Physical and chemical properties of the outer micron of planetary materials

<i>Period</i>	<i>Obligations</i>	
03/01/81-09/30/82	FY82: \$36,400	TOTAL: \$126,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tombrello, T. A.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAGW 254 California Institute of Technology 1263
Photochemical processes in the primitive atmosphere of the Earth

<i>Period</i>	<i>Obligations</i>	
10/15/81-10/14/82	FY82: \$46,246	TOTAL: \$46,246
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yung, Y. L.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NAGW 159 California Institute of Technology 1257
Measurement of Jovian winds from Voyager images

<i>Period</i>	<i>Obligations</i>	
03/15/81-03/14/83	FY82: \$32,769	TOTAL: \$80,603
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingersoll, A. P.	HQ-EL/Brinton, H. C.	13-Physics
	HQ-EL/Brunk, W. E.	

NAGW 255 California Institute of Technology 1264
Active region properties basic to the solar cycle

<i>Period</i>	<i>Obligations</i>	
02/08/82-11/30/82	FY82: \$54,940	TOTAL: \$54,940
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zirin, H.	HQ-EZ/Chipman, E. G.	19-Phys Sci, NEC

NAGW 185 California Institute of Technology 1258
High pressure cosmochemistry applied to major planetary interiors

<i>Period</i>	<i>Obligations</i>	
04/01/81-12/31/82	FY82: \$54,680	TOTAL: \$69,673
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stevenson, D. J.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/French, B. M.	

NAGW 257 California Institute of Technology 1265
Studies of phase equilibria of meteorites and planetary interiors

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$58,679	TOTAL: \$58,679
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stolper, E.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/French, B. M.	

NAGW 200 California Institute of Technology 1259
Studies of the composition at solar energetic particles

<i>Period</i>	<i>Obligations</i>	
05/15/81-02/14/83	FY82: \$69,080	TOTAL: \$117,078
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, E. C.	HQ-EL/Quaide, W. E.	32-Geological Sci
	HQ-EL/Mitz, M. A.	

NAGW 313 California Institute of Technology 1266
Spatial variation in Jovian photochemistry

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$40,770	TOTAL: \$40,770
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yung, Y. L.	HQ-EL/Brinton, H. C.	31-Atmos Sci
Allen, M.	HQ-EL/Brunk, W. E.	

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NAS 2-6556 California Institute of Technology 1267
Pioneer 10 and 11 data analysis of the Jovian infrared thermal structures experiment

<i>Period</i>	<i>Obligations</i>	
09/17/71-09/30/81	FY82: TOTAL: \$253,742	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingersoll, A. P.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J. W.	

NAS 5-20721 California Institute of Technology 1268
High energy cosmic rays experiment for international Sun Earth Explorer spacecraft

<i>Period</i>	<i>Obligations</i>	
02/07/75-12/31/82	FY82: TOTAL: \$1,837,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, E. C.	GSFC/Corrigan, J. P.	13-Physics

NAS 5-22965 California Institute of Technology 1269
Nimbus G Earth radiation budget sensor support

<i>Period</i>	<i>Obligations</i>	
01/27/76-09/30/82	FY82: TOTAL: \$117,591	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingersoll, A. P.	GSFC/Cherrix, G. T.	31-Atmos Sci

NAS 5-25049 California Institute of Technology 1270
HEAO A-2 cosmic X-ray experiment mission support and data analysis support

<i>Period</i>	<i>Obligations</i>	
08/13/78-03/31/82	FY82: TOTAL: \$837,958	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmire, G. P.	GSFC/Wende, C. D.	13-Physics

NAS 5-25451 California Institute of Technology 1271
Wide field/planetary camera for space telescope

<i>Period</i>	<i>Obligations</i>	
01/01/79-02/01/85	FY82: \$900,000 TOTAL: \$3,150,936	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Westphal, J.	GSFC/White, R. A.	11-Astronomy

NAS 5-25789 California Institute of Technology 1272
Data reduction and analysis of interplanetary monitoring platform (IMP) electron isotope spectrometer experiment

<i>Period</i>	<i>Obligations</i>	
03/24/80-12/31/82	FY82: \$92,000 TOTAL: \$254,702	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, E. C.	GSFC/Wales, R. O.	11-Astronomy

NAS 5-27226 California Institute of Technology 1273
Introplate deformation, stress in the lithosphere and the driving mechanism for plate motions

<i>Period</i>	<i>Obligations</i>	
06/29/82-07/01/84	FY82: \$45,035 TOTAL: \$45,035	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hager, B. H.	GSFC/Mead, G. D.	32-Geological Sci

NAS 5-27269 California Institute of Technology 1274
Definition phase of the science program for a photometric filtergraph for the solar optical telescope (SOT)

<i>Period</i>	<i>Obligations</i>	
05/26/82-10/26/83	FY82: \$70,000 TOTAL: \$70,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zirin, H.	GSFC/Stouffer, C.	31-Atmos Sci

NAS 8-27978 California Institute of Technology 1275
Design, development and operation of the ACR-7 heavy nuclei experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/23/72-09/30/82	FY82: \$39,000 TOTAL: \$1,192,192	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, E. C.	MSFC/Stone, J. F.	11-Astronomy
Vogt, R. E.	MSFC/Lusk, J. L.	

NAS 8-33108 California Institute of Technology 1276
Research in turbomachine rotor forces

<i>Period</i>	<i>Obligations</i>	
10/23/78-03/14/83	FY82: \$113,278 TOTAL: \$426,615	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Acosta, A. J.	MSFC/Gross, L. A.	46-Mech Engr
Brennen, C.	MSFC/Goetz, O. K.	
Caughy, T. K.		

NCA 2-90101 California Institute of Technology 1277
A study of the short wavelength performance of a large aperture space telescope

<i>Period</i>	<i>Obligations</i>	
06/01/81-12/31/82	FY82: TOTAL: \$15,728	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Soifer, B. T.	ARC/Werner, M. W.	11-Astronomy
Matthews, K. Y.		
Neugebauer, G.		

NCA 2-90201 California Institute of Technology 1278
Millimeter wavelength observations of galactic and extragalactic astronomical sources

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$3,120 TOTAL: \$3,120	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Neugebauer, G.	ARC/Werner, M. W.	11-Astronomy
Soifer, B. T.	ARC/Roellig, T. P.	

NCC 2-122 California Institute of Technology 1279
Stability and sensitivity analysis of life support systems

<i>Period</i>	<i>Obligations</i>	
02/01/81-10/31/82	FY82: TOTAL: \$27,222	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stephanoploulos, A.G.N.	ARC/MacElroy, R. D.	51-Biological Sci

NGL 05-002-003 California Institute of Technology 1280
Basic scientific research on lunar and planetary exploration

<i>Period</i>	<i>Obligations</i>	
12/01/59-11/30/82	FY82: \$145,795 TOTAL: \$3,661,193	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Muhleman, D. O.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

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NGL 05-002-034 California Institute of Technology 1281
 Research in solar flares and the solar atmosphere
Period *Obligations*
 05/18/65-11/30/82 FY82: \$185,000 TOTAL: \$3,549,353
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Zirin, H. HQ-EZ/Chipman, E. 11-Astronomy

NGR 05-002-114 California Institute of Technology 1289
 Radio interferometry of Mars and Venus
Period *Obligations*
 10/11/68-09/30/82 FY82: \$76,099 TOTAL: \$622,608
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Muhleman, D. O. HQ-EL/Brunk, W. E. 11-Astronomy
 HQ-EL/Murphy, R. E.

NGL 05-002-105 California Institute of Technology 1282
 Shock effects in minerals
Period *Obligations*
 08/16/68-03/31/83 FY82: \$180,000 TOTAL: \$1,560,093
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mazur, V. HQ-EL/Quaide, W. L. 32-Geological Sci
 Rust, W. D. HQ-EL/Taylor, L. A.
 Sasaki, Y.

NGR 05-002-160 California Institute of Technology 1290
 Research in particles and fields
Period *Obligations*
 10/27/69-09/30/82 FY82: \$550,000 TOTAL: \$4,650,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Vogt, R. E. HQ-EZ/Opp, A. G. 11-Astronomy
 HQ-EZ/Kaluzienski, L. J.

NGL 05-002-134 California Institute of Technology 1283
 Modern astronomical instrument development
Period *Obligations*
 10/27/69-03/31/83 FY82: \$65,000 TOTAL: \$879,646
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Oke, J. B. HQ-EZ/Weiler, E. J. 11-Astronomy
 HQ-EZ/Boggess, N. W.

NGR 05-002-284 California Institute of Technology 1291
 High angular resolution cosmic X-ray astronomy observations in the energy band 0.15-2 KE and XUV observations of early stars from an attitude controlled rocket
Period *Obligations*
 03/05/73-03/31/81 FY82: \$114 TOTAL: \$1,202,729
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Garmire, G. P. GSFC/Guidotti, J. 11-Astronomy
 Nousek, J.
 Pravdo, S.

NGL 05-002-140 California Institute of Technology 1284
 Research in planetary astronomy
Period *Obligations*
 04/11/69-03/31/83 FY82: \$51,837 TOTAL: \$647,128
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Soifer, B. T. HQ-EL/Brunk, W. E. 11-Astronomy
 HQ-EL/Murphy, R. E.

NGR 05-002-333 California Institute of Technology 1292
 Lunar sample analysis
Period *Obligations*
 02/01/74-05/31/82 FY82: TOTAL: \$658,074
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tombrello, T. A. JSC/Dietrich, J. W. 13-Physics

NGL 05-002-188 California Institute of Technology 1285
 Lunar sample analysis
Period *Obligations*
 02/03/71-01/31/83 FY82: \$795,000 TOTAL: \$7,094,958
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wasserburg, G. J. JSC/Dietrich, J. W. 12-Chemistry

NGT 05-002-800 California Institute of Technology 1293
 Graduate student researchers program
Period *Obligations*
 06/01/81-05/31/83 FY82: \$10,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Phillips, T. G. HQ-LB/Carter, C. H. 13-Physics

NGL 05-002-190 California Institute of Technology 1286
 Lunar sample analysis
Period *Obligations*
 01/19/71-01/31/83 FY82: \$75,000 TOTAL: \$1,102,645
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Epstein, S. JSC/Dietrich, J. W. 13-Physics

NGT 05-003-790 California Institute of Technology 1294
 Summer research program faculty fellowships
Period *Obligations*
 01/01/79-03/31/83 FY82: \$250,695 TOTAL: \$635,976
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Arbee, A. L. HQ-LB/Carter, C. H. 49-Engr, NEC

NGL 05-002-207 California Institute of Technology 1287
 Research in infrared and X-ray astronomy
Period *Obligations*
 02/18/71-09/30/82 FY82: TOTAL: \$1,071,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Neugebauer, G. HQ-EZ/Boggess, N. W. 11-Astronomy
 HQ-EZ/Weiler, E. J.

NGL 05-002-338 California Institute of Technology 1288
 Petrologic and microprobe investigations on isotopically dated lunar samples
Period *Obligations*
 02/01/74-01/31/83 FY82: \$20,000 TOTAL: \$622,422
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Albee, A. L. JSC/Dietrich, J. W. 13-Physics

NSG 1483 California Institute of Technology 1295
 Low speed impact damage on composite materials
Period *Obligations*
 01/15/78-01/14/83 FY82: \$49,430 TOTAL: \$214,322
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Knauss, W. G. LARC/Stams, J. H., Jr. 41-Aero Engr
 Babcock, C. D.

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NSG 5243 California Institute of Technology 1296
Observations of faint, high latitude blue stars and ultraviolet spectroscopy of peculiar galaxies and quasars
Period *Obligations*
03/01/78-03/31/82 FY82: TOTAL: \$64,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oke, J. B. GSFC/Boggess, A. 11-Astronomy

NSG 5301 California Institute of Technology 1297
Research in atmospheric chemistry and transport
Period *Obligations*
09/15/78-01/14/82 FY82: TOTAL: \$77,547
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yung, Y. L. GSFC/Hansen, J. E. 31-Atmos Sci

NSG 5327 California Institute of Technology 1298
High resolution comparative observations of microwave and hard X-ray sources
Period *Obligations*
02/01/79-01/31/81 FY82: TOTAL: \$71,993
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. GSFC/Donley, J. L. 31-Atmos Sci

NSG 5381 California Institute of Technology 1299
Support of research involving International Ultraviolet experiment (IUE) satellite
Period *Obligations*
07/01/79-09/30/81 FY82: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greenstein, J. L. GSFC/Boggess, A. 11-Astronomy

NSG 5384 California Institute of Technology 1300
Ultraviolet observations of young stellar populations
Period *Obligations*
07/01/79-06/30/81 FY82: TOTAL: \$2,916
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meier, D. L. GSFC/Boggess, A. 11-Astronomy
Schmidt, M.

NSG 7129 California Institute of Technology 1301
Relationship of impact cratering to the evolution of the lunar surface
Period *Obligations*
04/01/75-12/31/82 FY82: \$50,000 TOTAL: \$437,660
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahrens, T. J. HQ-EL/Quaide, W. L. 32-Geological Sci

NSG 7202 California Institute of Technology 1302
Laboratory partitioning studies relevant to the interpretation of lunar and meteoritic trace element data
Period *Obligations*
02/01/76-01/31/83 FY82: \$73,588 TOTAL: \$503,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burnett, D. S. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NSG 7376 California Institute of Technology 1303
Photochemistry of the Jovian planets and their satellites
Period *Obligations*
11/01/77-10/31/82 FY82: \$58,000 TOTAL: \$218,172
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yung, Y. L. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

NSG 7508 California Institute of Technology 1304
Nonlinear interactions in superfluid dynamics: Non-stationary heat transfer due to second sound shock waves
Period *Obligations*
11/01/78-03/31/82 FY82: TOTAL: \$192,510
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liepmann, H. W. ARC/Chapman, G. T. 13-Physics

NSG 7610 California Institute of Technology 1305
Fundamental studies in geodynamics
Period *Obligations*
08/01/79-07/31/84 FY82: TOTAL: \$435,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, D. L. HQ-ET/Vitale, J. A. 32-Geological Sci

NSG 7635 California Institute of Technology 1306
Thermal behavior of Martian satellites Phobos and Deimos
Period *Obligations*
06/01/79-06/30/81 FY82: TOTAL: \$47,961
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Neugebauer, M. G. HQ-EL/Quaide, W. L. 11-Astronomy

NSG 9019 California Institute of Technology 1307
Shock compression measurements on lunar samples
Period *Obligations*
10/01/74-05/31/82 FY82: TOTAL: \$395,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahrens, T. J. JSC/Dietrich, J. W. 19-Phys Sci, NEC

NAG 2-49 California Polytechnic State U - Pomona 1308
Development of a small-scale V/STOL propulsion simulator for modelling ground effect fields
Period *Obligations*
08/01/80-05/31/83 FY82: \$19,571 TOTAL: \$52,340
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lord, P. A. ARC/Christianson, R. S. 41-Aero Engr

NAG 2-61 California Polytechnic State U-San Luis 1309
Experimental investigation of control concepts for buoyant hybrid airships using a small scale flying model
Period *Obligations*
08/29/80-03/31/83 FY82: \$27,187 TOTAL: \$52,205
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sandlin, D. R. ARC/Talbot, P. D. 41-Aero Engr

NAG 4-4 California Polytechnic State U-San Luis 1310
The feasibility of thrust measurement during flight
Period *Obligations*
06/01/80-11/31/82 FY82: TOTAL: \$43,778
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Epstein, A. DFRF/Myers, L. P. 41-Aero Engr
DFRF/Burchman, F. W.

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NAG 4-7 California Polytechnic State U-San Luis 1311
Wind tunnel test of energy efficient livestock hauler having improved ventilation and temperature control

<i>Period</i>	<i>Obligations</i>	
04/01/81-12/01/82	FY82: TOTAL: \$22,506	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRF/Saltzman, E. J.	49-Engr, NEC

NAS 2-10364 California Polytechnic State U-San Luis 1312
Software development and application for dynamic analysis of the tilt rotor research aircraft

<i>Period</i>	<i>Obligations</i>	
09/04/79-03/31/84	FY82: \$92,770 TOTAL: \$229,402	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grimes, J. E.	ARC/Magee, J. P.	41-Aero Engr

NCA 2-678001 California Polytechnic State U-San Luis 1313
Vegetation mapping and inventory of forest resources for Santa Cruz count using LANDSAT imagery

<i>Period</i>	<i>Obligations</i>	
01/01/80-08/31/81	FY82: TOTAL: \$37,675	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pillsbury, N.	ARC/Peterson, D. L.	39-Env Sci, NEC

NCA 2-678101 California Polytechnic State U-San Luis 1314
Ad-2000 interactive graphic system tutorial

<i>Period</i>	<i>Obligations</i>	
10/01/80-12/31/82	FY82: \$2,278 TOTAL: \$19,644	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morgan, D. E.	ARC/Piazza, J. E.	22-Computer Science

NCC 4-1 California Polytechnic State U-San Luis 1315
Cal Poly graduate student program

<i>Period</i>	<i>Obligations</i>	
10/01/79-04/30/83	FY82: \$67,409 TOTAL: \$190,040	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sandlin, D. R.	DFRF/Washington, H. P.	41-Aero Engr

NSG 2391 California Polytechnic State U-San Luis 1316
Delay of separation with free stream turbulence

<i>Period</i>	<i>Obligations</i>	
08/01/79-01/31/83	FY82: TOTAL: \$79,744	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hoffmann, J. A.	ARC/Koenig, D. G.	41-Aero Engr
	ARC/Aoyagi, K.	

NAS 3-22172 California State University - Chico 1317
Operation of the LERC visitor information center

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/83	FY82: \$324,130 TOTAL: \$891,498	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewis, M. R.	LERC/Bondurant, L.	99-Multi-Discip

NCA 2-253101 California State University - Fullerton 1318
An attempt to model the nebula G333.6-0.2 with a spherically symmetric model

<i>Period</i>	<i>Obligations</i>	
12/15/80-06/01/81	FY82: TOTAL: \$1,973	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rubin, R. H.	ARC/Erickson, E. F.	13-Physics
	ARC/Werner, M. W.	

NCA 2-253801 California State University - Fullerton 1319
Real-time simulation of computer-assisted sequencing and scheduling of terminal area operations

<i>Period</i>	<i>Obligations</i>	
07/01/78-01/31/81	FY82: TOTAL: \$35,037	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dear, R. G.	ARC/Tobias, L.	22-Computer Science
	ARC/Erzberger, H.	

NCA 2-253901 California State University - Fullerton 1320
Absorption by SO₂ in the near UV and visible spectral regions with applications to Venus' atmosphere

<i>Period</i>	<i>Obligations</i>	
06/15/79-03/31/83	FY82: TOTAL: \$15,189	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nanes, R.	ARC/Boese, R. W.	13-Physics

NSG 7314 California State University - Fullerton 1321
Meteoritic bismuth and Lead-208 micro distributions

<i>Period</i>	<i>Obligations</i>	
02/01/77-02/28/83	FY82: \$34,970 TOTAL: \$216,651	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woolum, D. S.	HQ-EL/Taylor, L. A.	32-Geological Sci
	HQ-EL/Quaide, W. L.	

NSG 7614 California State University - Fullerton 1322
Atmospheric dynamics from Viking Lander data

<i>Period</i>	<i>Obligations</i>	
08/01/79-08/31/83	FY82: \$21,205 TOTAL: \$85,739	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ryan, J. A.	HQ-EL/Murphy, R. E.	31-Atmos Sci

NCA 2-290101 California State Univ. - Hayward 1323
Sociological survey in relation to project on advanced technology display house (ATDM)

<i>Period</i>	<i>Obligations</i>	
11/01/80-10/31/81	FY82: TOTAL: \$25,200	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huttman, E.	ARC/Holley, H. L.	76-Sociology

NAG 3-20 California State University - Long Beach 1324
Gear lubrication and cooling study

<i>Period</i>	<i>Obligations</i>	
01/01/80-03/28/83	FY82: \$54,036 TOTAL: \$153,191	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Akin, L.	LERC/Townsend, D. P.	46-Mech Engr

NCA 2-382001 California State University - Long Beach 1325
Experimental investigation of velocity biasing in laser Doppler anemometer measurements

<i>Period</i>	<i>Obligations</i>	
03/17/80-12/31/81	FY82: TOTAL: \$35,178	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Modarress, D.	ARC/Johnson, D. A.	46-Mech Engr

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NAG 3-73 California State University - Los Angeles 1326

Electrostatic fuel conditioning of internal combustion engines

<i>Period</i>	<i>Obligations</i>	
06/15/80-06/15/82	FY82: TOTAL: \$35,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gold, P. I.	LERC/McFadden, J. J.	46-Mech Engr
Kovacs, A. J.		

NASW 3257 California State University - Los Angeles 1327

Development of a direct contact heat exchanger for application in power generation systems utilizing geothermal brines

<i>Period</i>	<i>Obligations</i>	
03/12/79-03/20/81	FY82: TOTAL: \$32,387	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Manvi, R.	HQ-LC/Pohly, J. G.	46-Mech Engr
	JPL/Nakamura, Y.	

NSG 2199 California State University - Los Angeles 1328

Biochemical and structural studies on the thermal resistance of 'hardy' bacterial spores

<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/82	FY82: TOTAL: \$88,735	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yavarkovsky, J. H.	ARC/Hochstein, L. I.	51-Biological Sci

NAGW 27 California State University - Northridge 1329

Renewed synoptic observations and research on basic properties of the solar cycle

<i>Period</i>	<i>Obligations</i>	
02/01/80-09/30/81	FY82: TOTAL: \$94,922	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martin, S. F.	HQ-EZ/Chipman, E.	13-Physics

NSG 5324 California State University - Northridge 1330

Analysis of Solar Maximum Mission spectral information

<i>Period</i>	<i>Obligations</i>	
01/15/79-12/31/81	FY82: TOTAL: \$100,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martin, S. F.	GSFC/Wende, C.	31-Atmos Sci

NSG 5330 California State University - Northridge 1331

Research of active regions on the solar constant

<i>Period</i>	<i>Obligations</i>	
02/01/79-09/30/82	FY82: TOTAL: \$30,544	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chapman, G. A.	GSFC/Wende, C.	31-Atmos Sci

NSG 5333 California State University - Northridge 1332

Broad spectrum of magnetic, velocity and spectral data

<i>Period</i>	<i>Obligations</i>	
02/01/79-11/30/82	FY82: TOTAL: \$95,171	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chapman, G. A.	GSFC/Wende, C.	31-Atmos Sci

NCC 2-31 De Anza College 1333

Optimization of an interactive distributive computer network for planetary and infrared scientific research applications

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/31/82	FY82: \$59,501 TOTAL: \$125,256	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frederick, V.	ARC/Lum, H.	49-Engr, NEC

NCA 2-283201 Harvey Mudd College 1334

Development of low-cost simulation technology for high resolution radar displays

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$7,000 TOTAL: \$7,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Phillips, J. R.	ARC/Clary, G. R.	41-Aero Engr

NSG 4029 Harvey Mudd College 1335

Study for the enhancement of a structural analysis routine (STARS) program

<i>Period</i>	<i>Obligations</i>	
08/16/82-11/16/82	FY82: \$4,674 TOTAL: \$4,674	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tanenbaum, B. S.	DFRF/Gupta, K. K.	41-Aero Engr
	DFRF/Knight, R. J.	

NGT 05-060-800 Humboldt State University 1336

Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/31/82	FY82: TOTAL: \$11,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fox, L., III	HQ-LB/Carter, C. H.	39-Env Sci, NEC

NSG 7566 Pomona College 1337

Viking inorganic chemical analysis experiment: Data analysis and laboratory simulations

<i>Period</i>	<i>Obligations</i>	
03/01/79-05/31/82	FY82: TOTAL: \$171,726	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baird, A. K.	HQ-EL/Quaide, W. L.	32-Geological Sci

NAG 1-275 San Diego State University 1338

Multiobjective optimization and dynamic systems with uncertain parameters and stochastic process

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$29,475 TOTAL: \$29,475	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rao, S. S.	LARC/Schy, A. A.	29-Math/Cmputer, NEC
	LARC/Armstrong, E. S.	

NAG 2-92 San Diego State University 1339

Proposal to investigate the clouds and atmosphere of Venus

<i>Period</i>	<i>Obligations</i>	
02/01/81-09/30/82	FY82: TOTAL: \$24,954	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, A. T.	ARC/Fimmel, R. O.	19-Phys Sci, NEC

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NAG 2-104	San Diego State University	1340
Measurement of temperature and density fluctuations in turbulence using an ultraviolet laser		
<i>Period</i>	<i>Obligations</i>	
03/01/81-05/31/83	FY82: \$40,018	TOTAL: \$79,958
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Massey, G. A.	ARC/McKenzie, R. L.	19-Phys Sci, NEC
NAG 8-418	San Francisco State University	1347
Theoretical investigation of the Butcher-Oemler effect		
<i>Period</i>	<i>Obligations</i>	
07/27/81-07/26/83	FY82:	TOTAL: \$7,491
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lea, S. M.	MSFC/Stone, J. F.	11-Astronomy
NAG 8-356	San Diego State University	1341
Proposal to observe with the High Energy Astronomical Observatory-B observatory		
<i>Period</i>	<i>Obligations</i>	
06/27/80-06/27/83	FY82:	TOTAL: \$7,499
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, A.	MSFC/Swearingen, J. C.	11-Astronomy
Vanburen, D.		
NAGW 184	San Diego State University	1342
Calculate transmission of CO2 in the atmosphere of Venus		
<i>Period</i>	<i>Obligations</i>	
05/01/81-05/31/83	FY82: \$32,980	TOTAL: \$62,980
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	
NAGW 230	San Diego State University	1343
Mechanism of geotropic curvature in plant shoots		
<i>Period</i>	<i>Obligations</i>	
07/01/81-09/30/83	FY82: \$59,906	TOTAL: \$83,374
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rayle, D.	HQ-EB/Halstead, T. W.	51-Biological Sci
NAGW 250	San Diego State University	1344
Sulfur in the clouds of Venus		
<i>Period</i>	<i>Obligations</i>	
10/01/81-09/30/82	FY82: \$27,997	TOTAL: \$27,997
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, A.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	
NAGW 319	San Diego State University	1345
Photoabsorption and photodissociation of molecules important in the interstellar medium		
<i>Period</i>	<i>Obligations</i>	
05/15/82-05/14/83	FY82: \$59,875	TOTAL: \$59,875
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, L.	HQ-EZ/Bogges, N. W.	11-Astronomy
	HQ-EZ/Weiler, E. J.	
NAG 8-385	San Francisco State University	1346
Evolution of FE abundance in clusters of galaxies		
<i>Period</i>	<i>Obligations</i>	
12/01/80-11/30/82	FY82:	TOTAL: \$7,228
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lea, S.	MSFC/Stone, J. F.	11-Astronomy
NAGW 94	San Francisco State University	1348
Ternary coordination complexes of metals with 5' nucleotides and amino acids in a clay environment		
<i>Period</i>	<i>Obligations</i>	
07/01/80-09/30/82	FY82:	TOTAL: \$86,179
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Orenberg, J. B.	HQ-EB/Devincenzi, D. L.	12-Chemistry
NAGW 324	San Francisco State University	1349
Soluble minerals as prebiotic surfaces for absorption and condensation of biomolecules		
<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$75,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Orenberg, J. B.	HQ-EB/Devincenzi, D. L.	12-Chemistry
Lahav, N.		
NCA 2-660102	San Francisco State University	1350
Soluble salts and the origins of life		
<i>Period</i>	<i>Obligations</i>	
07/01/81-01/31/82	FY82:	TOTAL: \$10,306
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Orenberg, J. B.	ARC/Lawless, J. B.	12-Chemistry
NCA 2-660103	San Francisco State University	1351
Blood pressure control in endurance-trained athletes		
<i>Period</i>	<i>Obligations</i>	
09/01/81-08/31/83	FY82: \$34,882	TOTAL: \$34,882
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barnes, P. R.	ARC/Greenleaf, J. E.	51-Biological Sci
NCA 2-660201	San Francisco State University	1352
Joint use of resources for operation of the NASA-Ames university consortium office		
<i>Period</i>	<i>Obligations</i>	
10/01/81-10/31/82	FY82: \$103,472	TOTAL: \$103,472
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eisenberg, L.	ARC/Tomberlin, K. A.	99-Multi-Discip
Heidtmann, R. W.		
NCC 2-25	San Francisco State University	1353
Effects of centrifugation on gonadal and adrenocortical steroid in rats		
<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY82:	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kakihana, R.	ARC/Oyama, J.	51-Biological Sci
Butte, J.		

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NCC 2-32 San Francisco State University 1354
 Studies in origin-of life research search for extra-terrestrial intelligence
Period *Obligations*
 11/01/79-03/14/83 FY82: \$74,500 TOTAL: \$381,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Seeger, C. L. ARC/Billinghan, J. 59-Life Sci, NEC
 ARC/Wolfe, J. M.

NSG 7512 San Francisco State University 1355
 Smectite clays in Mars soil: Evidence for their presence and role in Viking biology experiments
Period *Obligations*
 10/01/78-03/31/83 FY82: \$49,400 TOTAL: \$175,942
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Orenberg, J. B. HQ-EB/Devincenzi, D. L.
 Banin, A. 51-Biological Sci

NAG 2-84 San Jose State University 1356
 Automaticity and skill acquisition in a dual-task environment
Period *Obligations*
 10/01/80-12/31/82 FY82: \$30,595 TOTAL: \$59,095
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Regan, J. E. ARC/Nagel, D. C. 69-Psych, NEC

NAG 2-85 San Jose State University 1357
 Application of surface acoustic wave devices to radio telemetry
Period *Obligations*
 01/01/81-09/30/82 FY82: TOTAL: \$6,387
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Strasilla, U. ARC/Deboo, G. J. 45-Elec Engr

NAG 2-99 San Jose State University 1358
 External thermal protection coating systems
Period *Obligations*
 10/01/80-11/30/82 FY82: \$32,862 TOTAL: \$57,456
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mayer, L. A. ARC/Mansfield, J. A. 49-Engr, NEC

NAG 3-196 San Jose State University 1359
 Transonic channel experiments to verify internal flow area ruling concepts
Period *Obligations*
 07/25/81-09/30/82 FY82: TOTAL: \$23,122
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Roberts, W. B. LERC/Crouse, J. E. 41-Aero Engr
 Nielsen, H. L. LERC/Sandercock, D. M.

NCA 2-675002 San Jose State University 1360
 A self-report method for motion sickness assessment in the squirrel monkey: Its use in habituation and sensory conflict studies
Period *Obligations*
 01/01/80-10/31/82 FY82: \$3,082 TOTAL: \$61,633
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ginsberg, R. ARC/Daunton, N. G. 51-Biological Sci

NCA 2-675003 San Jose State University 1361
 Early evolution of the cyanophyta
Period *Obligations*
 01/21/80-01/20/82 FY82: TOTAL: \$33,312
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Weaver, E. C. ARC/Klein, H. P. 54-Env Biology

NCA 2-675004 San Jose State University 1362
 Investigation of mitochondria as a means to determine the effects of space weightlessness on the aging process of drosophila
Period *Obligations*
 04/01/80-03/31/82 FY82: \$9,995 TOTAL: \$51,248
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Yengoyan, L. S. ARC/Miquel, J. 12-Chemistry

NCA 2-675007 San Jose State University 1363
 Stratospheric-mesospheric models
Period *Obligations*
 06/02/80-06/30/81 FY82: TOTAL: \$20,044
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Riegel, C. A. ARC/Whitten, R. C. 31-Atmos Sci
 ARC/Page, W. A.

NCA 2-675008 San Jose State University 1364
 Abiotic synthesis: Studies of potential primeval atmospheres and the development of biologically significant molecules
Period *Obligations*
 07/01/80-01/31/82 FY82: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ling, A. C. ARC/Woeller, F. H. 51-Biological Sci
 Mayer, L. A.
 Selter, G. A.

NCA 2-675009 San Jose State University 1365
 Measures of vestibular function and emesis in animal candidates for flight experimentation
Period *Obligations*
 07/01/80-06/30/82 FY82: TOTAL: \$18,228
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fox, R. A. ARC/Daunton, N. G. 61-Biol Aspects

NCA 2-675101 San Jose State University 1366
 Development of the advanced free tip helicopter rotor concept
Period *Obligations*
 10/01/80-05/31/81 FY82: TOTAL: \$14,665
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Liniecki, A. G. ARC/Stroub, R. H. 46-Mech Engr

NCA 2-675102 San Jose State University 1367
 Analysis of flight loads measurement systems of the rotor systems research aircraft
Period *Obligations*
 05/01/81-04/30/82 FY82: TOTAL: \$29,996
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Agarwal, R. B. ARC/Acree, C. W. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-675103 San Jose State University 1368
 Research problems in space and planetary biology, biotechnology, life support, and the origin of life
Period *Obligations*
 06/15/81-06/14/83 FY82: \$17,941 TOTAL: \$31,240
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Holley, D. C. ARC/Deal, P. H. 59-Life Sci, NEC

NCC 2-8 San Jose State University 1375
 Development of superoxides as an improved oxygen source for breathing apparatus
Period *Obligations*
 06/20/79-11/30/82 FY82: \$15,300 TOTAL: \$183,152
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Spitze, L. A. ARC/Wydeven, T. 12-Chemistry
 Wood, P.

NCA 2-675201 San Jose State University 1369
 Preliminary structural design analysis of high aspect ratio wings for transport aircraft
Period *Obligations*
 10/01/81-12/31/82 FY82: \$37,880 TOTAL: \$37,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wang, J. C. ARC/Galloway, T. L. 41-Aero Engr

NCC 2-28 San Jose State University 1376
 Characterization and degradation studies on aromatic polyimides, polyesters and composite resins
Period *Obligations*
 10/01/79-10/31/82 FY82: \$55,295 TOTAL: \$180,589
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ling, A. ARC/Heimbuch, A. H. 12-Chemistry
 Hsu, M. T.

NCA 2-675202 San Jose State University 1370
 Studies on a blue-green alga capable of anoxygenic photosynthesis
Period *Obligations*
 01/25/82-01/24/84 FY82: \$21,000 TOTAL: \$21,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Weaver, E. C. ARC/Klein, H. P. 51-Biological Sci

NCC 2-34 San Jose State University 1377
 Cooperative research on flight management
Period *Obligations*
 10/01/79-10/31/82 FY82: \$111,909 TOTAL: \$339,669
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Plant, W. T. ARC/Curry, R. 59-Life Sci, NEC

NCA 2-675204 San Jose State University 1371
 Wet oxidation for waste treatment in a CELSS
Period *Obligations*
 04/01/82-03/31/84 FY82: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Spitze, L. A. ARC/Wydeven, T. 12-Chemistry

NCC 2-35 San Jose State University 1378
 Simulation technology: Human performance in flight simulation abstract
Period *Obligations*
 10/01/79-10/31/82 FY82: \$55,884 TOTAL: \$233,610
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Plant, W. T. ARC/Tanner, T. A. 69-Psych, NEC

NCA 2-675907 San Jose State University 1372
 Population dynamics in small scale microbial ecosystems
Period *Obligations*
 07/01/79-01/01/82 FY82: \$17,994 TOTAL: \$17,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Haight, R. D. ARC/Deal, P. H. 51-Biological Sci

NCC 2-37 San Jose State University 1379
 Helicopter human factors
Period *Obligations*
 10/01/79-10/15/82 FY82: \$96,036 TOTAL: \$237,303
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Plant, W. T. ARC/Hartzell, E. J. 69-Psych, NEC

NCC 2-3 San Jose State University 1373
 A study of fiber materials for use in temperature resistant fiber reinforced composites
Period *Obligations*
 05/31/79-11/30/82 FY82: \$49,087 TOTAL: \$175,391
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Anderson, R. N. ARC/Riccitiello, S. R. 47-Materials Engr
 ARC/Goldstein, H. E.

NCC 2-53 San Jose State University 1380
 Mineral separation systems
Period *Obligations*
 01/01/80-02/28/82 FY82: \$80,032 TOTAL: \$80,032
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Spitze, L. A. ARC/Wydeven, T. 12-Chemistry

NCC 2-4 San Jose State University 1374
 An investigation of the toxic hazards from burning materials in controlled fires
Period *Obligations*
 04/01/79-10/31/82 FY82: \$109,887 TOTAL: \$109,887
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ballard, R. C. ARC/Cagliostro, D. E. 12-Chemistry

NCC 2-56 San Jose State University 1381
 Heat release studies for aircraft materials
Period *Obligations*
 01/01/80-02/28/83 FY82: \$73,187 TOTAL: \$175,603
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ling, A. C. ARC/Kourtides, D. A. 12-Chemistry
 ARC/Gilwee, W. J.

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NCC 2-68	San Jose State University	1382			
One and two-dimensional atmospheric computer model and studies					
	<i>Period</i>	<i>Obligations</i>			
04/01/80-03/31/83	FY82: \$79,000	TOTAL: \$206,835			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Riegel, C. A.	ARC/Toon, O. B.	31-Atmos Sci			
	ARC/Danielson, E. F.				
NCC 2-72	San Jose State University	1383			
Changes in cortisol and antidiuretic hormone during induced motion sickness in squirrel monkeys					
	<i>Period</i>	<i>Obligations</i>			
04/15/80-02/28/82	FY82:	TOTAL: \$26,214			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fox, R. A.	ARC/Suri, K. P.	51-Biological Sci			
NCC 2-73	San Jose State University	1384			
A method for evaluating the transports by mean deviatory motions in a two-dimensional model					
	<i>Period</i>	<i>Obligations</i>			
05/01/80-10/31/82	FY82: \$18,000	TOTAL: \$133,161			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Riegel, C. A.	ARC/Danielsen, E. F.	31-Atmos Sci			
	ARC/Summers, A. L.				
NCC 2-80	San Jose State University	1385			
A study of the physical properties of composites					
	<i>Period</i>	<i>Obligations</i>			
05/01/80-08/31/82	FY82:	TOTAL: \$29,998			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Holmstrom, F.	ARC/Mansfield, J.	47-Materials Engr			
NCC 2-81	San Jose State University	1386			
Synthesis, characterization, and formulation of perfluorocarbon ether elastomers					
	<i>Period</i>	<i>Obligations</i>			
10/01/80-02/28/83	FY82: \$21,800	TOTAL: \$192,514			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Neptune, J. A.	ARC/Rosser, R. W.	12-Chemistry			
Kellman, R.	ARC/Parker, J. A.				
NCC 2-83	San Jose State University	1387			
Determination, state estimation and parameter identification					
	<i>Period</i>	<i>Obligations</i>			
06/01/80-11/30/82	FY82: \$166,025	TOTAL: \$250,150			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wang, J. C.	ARC/Jinkerson, J. H.	21-Mathematics			
NCC 2-114	San Jose State University	1388			
A study of the fire characteristics resulting from liquid fuel spills on flat, inclined surfaces					
	<i>Period</i>	<i>Obligations</i>			
01/01/81-03/31/83	FY82: \$30,000	TOTAL: \$73,359			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ponds, J. W.	ARC/Mansfield, J. A.	49-Engr, NEC			
NCC 2-116	San Jose State University	1389			
Assessment of airline pilot's rhythm synchrony					
	<i>Period</i>	<i>Obligations</i>			
01/01/81-04/30/82	FY82: \$1,300	TOTAL: \$25,765			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Holley, D. C.	ARC/Winget, C. M.	59-Life Sci, NEC			
NCC 2-123	San Jose State University	1390			
Smoothing of flight test and accident data					
	<i>Period</i>	<i>Obligations</i>			
02/01/81-10/31/82	FY82:	TOTAL: \$5,399			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wang, J. C.	ARC/Bach, R. E., Jr.	41-Aero Engr			
NCC 2-132	San Jose State University	1391			
A radiative-convective model study of the climatic effects of aerosols					
	<i>Period</i>	<i>Obligations</i>			
04/01/81-05/31/82	FY82:	TOTAL: \$42,193			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Riegel, C. A.	ARC/Pollack, J.	31-Atmos Sci			
NCC 2-137	San Jose State University	1392			
Environmental influences on failure mechanisms of graphite/epoxy composites					
	<i>Period</i>	<i>Obligations</i>			
07/01/81-01/31/83	FY82:	TOTAL: \$58,798			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Clements, L.	ARC/Nelson, H. G.	47-Materials Engr			
NCC 2-141	San Jose State University	1393			
An experimental model to predict the degree of circadian rhythm disruption following alterations of rest-activity cycles					
	<i>Period</i>	<i>Obligations</i>			
05/01/81-10/31/82	FY82: \$8,210	TOTAL: \$17,610			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Holley, D. C.	ARC/Winget, C. M.	51-Biological Sci			
NCC 2-143	San Jose State University	1394			
Design and fabrication of surface acoustics wave devices					
	<i>Period</i>	<i>Obligations</i>			
05/01/81-09/30/82	FY82:	TOTAL: \$6,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Yuen, C.	ARC/Deboo, G. J.	45-Elec Engr			
	ARC/Westbrook, D. M.				
NCC 2-153	San Jose State University	1395			
Energetic contributions of the mineral phase to chemistry on planetary surfaces					
	<i>Period</i>	<i>Obligations</i>			
07/01/81-10/31/82	FY82: \$20,350	TOTAL: \$80,350			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Coyne, L. M.	ARC/Chang, S.	12-Chemistry			
Ling, A. C.	ARC/Lawless, J.				

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NCC 2-155 San Jose State University 1396
The relative stress corrosion cracking susceptibility of candidate aluminum-lithium alloys
Period *Obligations*
08/24/81-12/31/82 FY82: TOTAL: \$62,272
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pizzo, P. P. ARC/Nelson, H. G. 47-Materials Engr

NCC 2-197 San Jose State University 1403
Circadian rhythms: Physiological adjustment and performance in simulation studies
Period *Obligations*
06/01/82-10/31/82 FY82: \$25,088 TOTAL: \$25,088
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holley, D. C. ARC/Deroshia, C. W. 51-Biological Sci
ARC/Winget, C. M.

NCC 2-161 San Jose State University 1397
Smoothing of flight-test and accident data
Period *Obligations*
10/01/81-10/31/82 FY82: \$19,312 TOTAL: \$19,312
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moriarty, G. ARC/Bach, R. E., Jr. 41-Aero Engr

NCC 2-207 San Jose State University 1404
Mechanisms by which hypergravitational exposure influences hormonal and enzymatic regulation of carbohydrate metabolism
Period *Obligations*
06/01/82-05/31/83 FY82: \$8,120 TOTAL: \$8,120
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holley, D. C. ARC/Oyama, J. 54-Env Biology

NCC 2-165 San Jose State University 1398
Combustion properties of carbon fibre composites
Period *Obligations*
11/01/81-09/30/82 FY82: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mayer, L. A. ARC/Mansfield, J. A. 49-Engr, NEC

NCC 2-211 San Jose State University 1405
Tropospheric stratospheric measurement studies
Period *Obligations*
09/22/82-09/21/83 FY82: \$53,398 TOTAL: \$53,398
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Riegel, C. ARC/Chan, K. L. 31-Atmos Sci
Bowen, S. W.

NCC 2-167 San Jose State University 1399
Functional significance of sensory interactions in the vestibular system in relation to self motion perception and motion sickness
Period *Obligations*
01/01/82-12/31/82 FY82: \$49,330 TOTAL: \$49,330
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fox, R. A. ARC/Daunton, N. G. 51-Biological Sci

NSG 2371 San Jose State University 1406
Graphite epoxy composite protective coatings
Period *Obligations*
01/01/79-06/30/81 FY82: TOTAL: \$50,134
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mayer, L. A. ARC/Sawko, P. M. 12-Chemistry

NCC 2-168 San Jose State University 1400
Experimental studies of the distribution of minor constituents
Period *Obligations*
01/01/82-12/31/82 FY82: \$33,000 TOTAL: \$33,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodman, T. K. ARC/Inn, E. C. 31-Atmos Sci
ARC/Vedder, J. F.

NAG 1-17 Stanford University 1407
The annoyance of impulsive helicopter noise
Period *Obligations*
12/01/79-02/28/82 FY82: TOTAL: \$106,512
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Karamcheti, K. LARC/Powell, C. A., Jr. 69-Psych, NEC
Ahumada, A.

NCC 2-183 San Jose State University 1401
Climatic effects of the arctic haze
Period *Obligations*
04/01/82-03/31/83 FY82: \$46,101 TOTAL: \$46,101
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Riegel, C. A. ARC/Pollack, J. B. 31-Atmos Sci

NAG 1-97 Stanford University 1408
Basic research in structural dynamics and control of large flexible space structures
Period *Obligations*
08/01/80-07/31/82 FY82: \$39,979 TOTAL: \$218,675
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cannon, R. H., Jr. LARC/Montgomery, R. C. 42-Astro Engr
LARC/Horner, G. C.

NCC 2-195 San Jose State University 1402
Development of analytical techniques for the analysis of fiber materials
Period *Obligations*
08/01/82-07/31/83 FY82: \$25,612 TOTAL: \$25,612
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, R. N. ARC/Riccitiello, S. R. 47-Materials Engr
ARC/Leiser, D.

NAG 1-105 Stanford University 1409
Research investigation of a miniature hydraulic actuator system
Period *Obligations*
10/01/80-01/31/83 FY82: \$30,000 TOTAL: \$58,520
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Debra, D. B. LARC/Montgomery, R. C. 41-Aero Engr
LARC/Terray, D. E.

**NASA'S UNIVERSITY PROGRAM
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NAG 1-182 **Stanford University** **1410**
High energy efficient solid state laser sources
Period *Obligations*
06/01/81-05/31/83 **FY82: \$58,052** **TOTAL: \$108,409**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Byer, R. L. LARC/Browell, E. V. 45-Elec Engr
LARC/Carter, A. F.

NAG 2-36 **Stanford University** **1417**
Density measurement in air with a saturable absorbing seed gas
Period *Obligations*
07/01/80-06/30/82 **FY82:** **TOTAL: \$50,374**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baganoff, D. ARC/McKenzie, R. L. 19-Phys Sci, NEC

NAG 1-202 **Stanford University** **1411**
Effects of required take-off and landing runway lengths and cruise speed
Period *Obligations*
06/01/81-05/31/82 **FY82:** **TOTAL: \$27,701**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shevell, R. S. LARC/Jernell, L. S. 41-Aero Engr

NAG 2-42 **Stanford University** **1418**
The Joint Institute for Aeronautics and Acoustics experimental investigation of flow over a single backward facing step
Period *Obligations*
05/01/80-07/31/82 **FY82:** **TOTAL: \$100,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kline, S. J. ARC/Johnson, D. A. 41-Aero Engr
Eaton, J. K.

NAG 1-236 **Stanford University** **1412**
Basic research in structural dynamics and control of large flexible space structures
Period *Obligations*
01/01/82-09/30/82 **FY82: \$69,021** **TOTAL: \$69,021**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ashley, H. LARC/Montgomery, R. C. 42-Astro Engr
Bryson, A. E. LARC/Horner, G. C.
Cannon, R. H.

NAG 2-44 **Stanford University** **1419**
Studies on lasers and laser devices
Period *Obligations*
04/01/80-03/31/83 **FY82: \$80,000** **TOTAL: \$240,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harris, S. E. ARC/McKenzie, R. L. 19-Phys Sci, NEC
Siegman, A. E.

NAG 1-259 **Stanford University** **1413**
Unconditionally stable element-by-element implicit algorithms for heat conduction analysis
Period *Obligations*
04/01/82-03/31/83 **FY82: \$31,981** **TOTAL: \$31,981**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hughes, T. J. LARC/Olsen, G. C.
29-Math/Cmputer, NEC

NAG 2-45 **Stanford University** **1420**
Joint Institute for Aeronautics and Acoustics: Application of holography to the study of helicopter rotor flow fields
Period *Obligations*
07/01/80-06/30/81 **FY82:** **TOTAL: \$22,504**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baganoff, D. ARC/Yu, Y. H. 41-Aero Engr
ARC/Schmitz, F. H.

NAG 1-269 **Stanford University** **1414**
Application of the Osher Upwind Scheme to the Gasdynamic Equations
Period *Obligations*
06/01/82-05/31/83 **FY82: \$35,000** **TOTAL: \$35,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Steger, J. L. LARC/Rudy, D. H. 41-Aero Engr
LARC/Dwoyer, D. L.

NAG 2-62 **Stanford University** **1421**
High accuracy heat capacity measurement through the lambda transition of liquid helium
Period *Obligations*
09/01/80-08/31/82 **FY82:** **TOTAL: \$86,139**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fairbanks, W. M. ARC/Brooks, W. F. 13-Physics

NAG 2-21 **Stanford University** **1415**
An experimental investigation of the behavior of sub-grid scale motions in turbulent shear flow
Period *Obligations*
02/01/80-03/31/83 **FY82: \$62,000** **TOTAL: \$190,256**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cantrell, B. ARC/Chapman, G. T. 41-Aero Engr

NAG 2-79 **Stanford University** **1422**
1980-81 conference on computation of complex turbulent flows: Processing of evaluated flows for data library
Period *Obligations*
10/01/80-09/30/81 **FY82:** **TOTAL: \$49,641**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cantwell, B. ARC/Rubesin, M. W. 41-Aero Engr

NAG 2-29 **Stanford University** **1416**
Research and training in computational turbulence flow simulation
Period *Obligations*
04/01/80-03/31/83 **FY82: \$115,000** **TOTAL: \$291,089**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reynolds, W. C. ARC/Peterson, V. L. 41-Aero Engr
Kim, J. J.
Mansour, N. N.

NAG 2-83 **Stanford University** **1423**
Application of modern coherent and Fourier optical techniques to fluid mechanics research
Period *Obligations*
01/01/81-12/31/82 **FY82: \$36,598** **TOTAL: \$59,535**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hesselink, L. ARC/McKenzie, R. L. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
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NAG 2-111	Stanford University	1424
A study of flow past an airfoil with jet issuing from its lower surface		
<i>Period</i>	<i>Obligations</i>	
02/01/81-10/31/82	FY82: \$20,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Aoyagi, K.	41-Aero Engr
Krothapalli, K.	ARC/Koenig, D. G.	
NAG 2-122	Stanford University	1425
A theoretical study of circadian organization and its disruption known as jet lag		
<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$54,590	TOTAL: \$74,590
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pittendrigh, C. S.	ARC/Klein, H. P.	51-Biological Sci
NAG 2-127	Stanford University	1426
A Schlieren-shadowgraph optical system for unsteady flow observations		
<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/82	FY82:	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Soderman, P. T.	41-Aero Engr
NAG 2-130	Stanford University	1427
Noninvasive determination of bone properties from mechanical measurement		
<i>Period</i>	<i>Obligations</i>	
10/01/81-10/31/82	FY82: \$28,000	TOTAL: \$28,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Steele, C. R.	ARC/Young, D. R.	56-Medical Sciences
NAG 2-156	Stanford University	1428
Artificial stabilization of a lightweight RPV rotary wing aircraft		
<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$18,000	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Debra, D.	ARC/Morse, H. A.	41-Aero Engr
NAG 2-168	Stanford University	1429
Modeling inferential decision making during emergencies		
<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$21,683	TOTAL: \$21,683
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thompson, D. A.	ARC/Curry, R. E.	59-Life Sci, NEC
NAG 2-172	Stanford University	1430
Quantification of resonant refractivity as an improved flow visualization technique		
<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/83	FY82: \$6,508	TOTAL: \$6,508
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bershader, D.	ARC/McKenzie, R. L.	13-Physics
NAG 2-173	Stanford University	1431
Circulation control aerodynamics		
<i>Period</i>	<i>Obligations</i>	
01/01/82-06/30/83	FY82: \$57,897	TOTAL: \$57,897
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karancheti, K.	ARC/Conlon, J. A.	41-Aero Engr
Wood, N. J.		
NAG 2-187	Stanford University	1432
Unsteady effects of propellers in non-uniform flows		
<i>Period</i>	<i>Obligations</i>	
06/01/82-10/31/82	FY82: \$9,439	TOTAL: \$9,439
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shevell, R. S.	ARC/Corsiglia, V. R.	41-Aero Engr
	ARC/Jonkouski, G. C.	
NAG 2-191	Stanford University	1433
Modeling and control of V/STOL aircraft		
<i>Period</i>	<i>Obligations</i>	
08/15/82-08/14/83	FY82: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bryson, A. E.	ARC/Erzberger, H.	41-Aero Engr
	ARC/Denery, D. G.	
NAG 3-3	Stanford University	1434
Heat transfer and hydrodynamic studies on a curved surface with full-coverage film coolings		
<i>Period</i>	<i>Obligations</i>	
11/01/79-10/29/82	FY82: \$100,000	TOTAL: \$279,310
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnston, J. P.	LERC/Gaugler, R. E.	46-Mech Engr
Moffat, R. J.		
Kays, W. M.		
NAG 3-63	Stanford University	1435
Computing low-thrust transfers to synchronous orbit		
<i>Period</i>	<i>Obligations</i>	
05/02/80-04/29/83	FY82: \$25,000	TOTAL: \$90,979
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Breakwell, J. V.	LERC/Diesposti, R. S.	42-Astro Engr
Redding, D.		
NAG 3-151	Stanford University	1436
Interference study among satellite systems of various modulation techniques		
<i>Period</i>	<i>Obligations</i>	
01/05/81-01/03/83	FY82: \$63,843	TOTAL: \$129,264
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lusignan, B. B.	LERC/Whyte, W. A.	45-Elec Engr
NAG 3-248	Stanford University	1437
Structure and high temperature strength of properties of cobalt and nickel aluminides		
<i>Period</i>	<i>Obligations</i>	
01/02/82-05/01/83	FY82: \$60,347	TOTAL: \$60,347
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nix, W. D.	LERC/Whittenberger, J. D.	47-Materials Engr
Sinclair, R.		

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NAG 3-261	Stanford University	1438			
Free surface phenomena under low and zero gravity conditions					
<i>Period</i>	<i>Obligations</i>				
02/25/82-02/24/83	FY82: \$46,776	TOTAL: \$46,776			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hesselink, L.	LERC/Chai, A. T.	13-Physics			
NAG 3-275	Stanford University	1439			
Development of computational algorithms highly rotational subsonic inviscid flow simulation					
<i>Period</i>	<i>Obligations</i>				
09/01/82-12/31/83	FY82: \$99,965	TOTAL: \$99,965			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Steger, J. L.	LERC/Johnson, G. M.	41-Aero Engr			
NAG 3-285	Stanford University	1440			
Velocity visualization in gaseous flows					
<i>Period</i>	<i>Obligations</i>				
05/15/82-05/14/83	FY82: \$40,000	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hanson, R. K.	LERC/Bosque, M. A.	41-Aero Engr			
NAG 3-319	Stanford University	1441			
An element-by-elements solution algorithm for problems of structural mechanics					
<i>Period</i>	<i>Obligations</i>				
09/01/82-08/31/83	FY82: \$65,230	TOTAL: \$65,230			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hughes, T. J.	LERC/Chamis, C. C. LERC/Hirschbein, M. S.	41-Aero Engr			
NAG 5-120	Stanford University	1442			
Computer simulations of very low frequency (VLF) wave-particle interactions in the magnetosphere					
<i>Period</i>	<i>Obligations</i>				
10/01/80-09/30/81	FY82:	TOTAL: \$9,978			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Helliwell, R. A.	GSFC/Corrigan, J. P.	11-Astronomy			
NAG 5-178	Stanford University	1443			
Research relative to rupture mechanics of plate boundaries					
<i>Period</i>	<i>Obligations</i>				
05/15/81-05/14/83	FY82: \$45,677	TOTAL: \$89,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nur, A. M. Thompson, G. A.	GSFC/Welker, J.	32-Geological Sci			
NAG 5-202	Stanford University	1444			
A study of the chromospheres, coronae and transition regions of main sequence and giant stars					
<i>Period</i>	<i>Obligations</i>				
08/01/81-07/31/83	FY82: \$7,000	TOTAL: \$14,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Walker, A. B.	GSFC/Kondo, Y.	11-Astronomy			
NAG 5-220	Stanford University	1445			
Growth and evaluation of crystals for infrared nonlinear applications					
<i>Period</i>	<i>Obligations</i>				
02/01/82-01/31/83	FY82: \$50,155	TOTAL: \$50,155			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Byer, R. L. Feigelson, R. S.	GSFC/Button, J. L.	45-Elec Engr			
NAG 5-261	Stanford University	1446			
Research relative to spatio-temporal reasoning					
<i>Period</i>	<i>Obligations</i>				
08/01/82-07/31/83	FY82: \$100,000	TOTAL: \$100,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Binford, T. O. Buchanan, B. G.	GSFC/Paddock, S. J.	22-Computer Science			
NAG 5-611	Stanford University	1447			
An investigation of current collection processes in the ionospheric plasma at high potential					
<i>Period</i>	<i>Obligations</i>				
08/01/82-07/31/83	FY82: \$77,000	TOTAL: \$77,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Banks, P. M. Williamson, P. R.	GSFC/Early, L. J.	13-Physics			
NAG 8-16	Stanford University	1448			
Thermal low dynamics experiment (tide) an investigation of low energy (0-100 ev) ions on the PPL and EML spacecraft of the OPEN mission					
<i>Period</i>	<i>Obligations</i>				
08/30/82-11/17/83	FY82: \$2,990	TOTAL: \$2,990			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Banks, P.	MSFC/Chappett, C. R.	11-Astronomy			
NAG 8-325	Stanford University	1449			
A study of the size and composition of interstellar grains					
<i>Period</i>	<i>Obligations</i>				
03/01/80-02/28/83	FY82:	TOTAL: \$15,563			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Walker, A. B.	MSFC/Stone, J. F.	11-Astronomy			
NAGW 86	Stanford University	1450			
A comparative study of calculated and observed magnetosheath plasma properties					
<i>Period</i>	<i>Obligations</i>				
07/01/80-12/31/81	FY82:	TOTAL: \$52,900			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Spreiter, J. R.	HQ-EZ/Lynch, J. T.	12-Chemistry			
NAGW 92	Stanford University	1451			
Research in solar plasma theory					
<i>Period</i>	<i>Obligations</i>				
07/15/80-07/14/83	FY82: \$176,000	TOTAL: \$481,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sturrock, P. A.	HQ-EE/Butler, D. M.	13-Physics			

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NAGW 128 **Stanford University** **1452**
 Viking Lander mapping of the surface of Mars
Period *Obligations*
 12/01/80-07/31/81 **FY82:** **TOTAL: \$24,740**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Liebes, S. HQ-EL/Boyce, J. M. 32-Geological Sci

NAGW 152 **Stanford University** **1453**
 New theoretical models of Jupiter's ionosphere in response to the results of radio occultation observations
Period *Obligations*
 03/15/81-03/14/83 **FY82: \$81,000** **TOTAL: \$122,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Eshleman, V. R. HQ-EL/Brinton, H. C. 13-Physics
 HQ-EL/Brunk, W. E.

NAGW 164 **Stanford University** **1454**
 A comparative study of Jovian and terrestrial plasma waves
Period *Obligations*
 03/15/81-03/14/83 **FY82: \$35,000** **TOTAL: \$70,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Helliwell, R. A. HQ-EE/Lynch, J. T. 13-Physics
 HQ-EL/Evans, N.

NAGW 235 **Stanford University** **1455**
 Study of the dynamics of atmosphere-ionosphere magnetosphere interactions
Period *Obligations*
 08/15/81-06/30/83 **FY82: \$200,000** **TOTAL: \$400,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Banks, P. M. HQ-EE/Lynch, J. T. 31-Atmos Sci
 HQ-EE/Schmerling, E. R.

NAGW 268 **Stanford University** **1456**
 Materials for high temperature thermo electric conversion
Period *Obligations*
 10/01/81-09/30/82 **FY82: \$150,000** **TOTAL: \$150,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Felgelson, R. HQ-RT/Ambrus, J. H. 47-Materials Engr
 Elwell, D. JPL/Stapher, G.
 Route, R.

NAGW 278 **Stanford University** **1457**
 Theoretical studies of the solar wind flow around the Earth and other planets
Period *Obligations*
 03/01/82-02/28/83 **FY82: \$50,000** **TOTAL: \$50,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Spreiter, J. R. HQ-EE/Lynch, J. T. 13-Physics
 HQ-EE/Schmerling, E. R.

NAGW 299 **Stanford University** **1458**
 Theoretical studies of cosmological tests from space observations
Period *Obligations*
 03/01/82-08/31/83 **FY82: \$15,524** **TOTAL: \$15,524**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wagoner, R. V. HQ-EZ/Weiler, E. J. 11-Astronomy
 HQ-EZ/Bogges, N. W.

NAGW 326 **Stanford University** **1459**
 Radio science technique as tool for planetary and solar system exploration
Period *Obligations*
 06/01/82-05/31/83 **FY82: \$80,000** **TOTAL: \$80,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Eshelman, V. R. HQ-EL/Brinton, H. C. 11-Astronomy
 Tyler, G. L. HQ-EL/Brunk, W. E.

NAGW 341 **Stanford University** **1460**
 Analysis of radio occultation and scattering observations of Saturn's ring with Voyager spacecraft
Period *Obligations*
 04/01/82-09/30/82 **FY82: \$100,000** **TOTAL: \$100,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tyler, G. L. HQ-EL/Quaide, W. L. 32-Geological Sci
 HQ-EL/Boyce, J. M.

NAGW 361 **Stanford University** **1461**
 Interpretation of Seasat SAR imagery in terms of ocean surface parameters using specially processed data from the JASIN and GOASEX experiments
Period *Obligations*
 06/01/82-06/31/83 **FY82: \$53,500** **TOTAL: \$53,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Peterson, A. M. HQ-EE/McGoldrick, L. F.
 Vesecky, J. HQ-EE/Wilson, W. S. 33-Oceanography
 Gonzalez, F. I.

NAS 5-24232 **Stanford University** **1462**
 Applications of heat capacity mapping mission satellite data to the study of urban heating patterns
Period *Obligations*
 06/01/77-08/08/81 **FY82:** **TOTAL: \$112,277**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lyon, R. J. GSFC/Broderick, J. C. 32-Geological Sci

NAS 5-24409 **Stanford University** **1463**
 Controlled and naturally occurring wave particle interactions in the magnetosphere, for Dynamic Explorer
Period *Obligations*
 09/22/78-05/30/81 **FY82:** **TOTAL: \$40,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Helliwell, R. A. GSFC/Fellerman, K. D. 13-Physics
 Park, C. G. GSFC/Lidston, J. M.

NAS 5-24420 **Stanford University** **1464**
 Observation and correlative studies from ISEE-C data from the Stanford Solar Telescope
Period *Obligations*
 02/17/78-09/30/81 **FY82:** **TOTAL: \$275,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wilcox, J. M. GSFC/Wales, R. O. 13-Physics

NAS 5-24479 **Stanford University** **1465**
 Soil moisture in relation to geologic structure and lithology in northern California
Period *Obligations*
 04/21/78-12/20/80 **FY82:** **TOTAL: \$16,973**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rich, E. I. GSFC/Broderick, J. 32-Geological Sci

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NAS 5-25043 **Stanford University** **1466**
Radiographic applications of spatial frequency multiplexing
Period *Obligations*
06/19/78-12/18/80 FY82: \$974 TOTAL: \$70,974
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacOvski, A. GSFC/Ostrow, H. 19-Phys Sci, NEC

NAS 5-25688 **Stanford University** **1467**
Controlled and naturally occurring wave particle interaction-
investigation on Dynamics Explorer phase III
Period *Obligations*
05/01/80-07/31/83 FY82: \$152,000 TOTAL: \$260,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Helliwell, R. A. GSFC/Skillman, D. 11-Astronomy

NAS 5-25744 **Stanford University** **1468**
International Sun-Earth Explorer data reduction
Period *Obligations*
11/01/79-11/30/82 FY82: \$125,000 TOTAL: \$397,115
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Helliwell, R. A. GSFC/Wales, R. O. 11-Astronomy

NAS 5-26020 **Stanford University** **1469**
Definition study of the total absorption shower counter
Period *Obligations*
01/07/80-10/31/81 FY82: \$15,375 TOTAL: \$312,595
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hofstadter, R. GSFC/Campbell, C. E. 11-Astronomy

NAS 5-26682 **Stanford University** **1470**
Design phase of total absorption shower counter
Period *Obligations*
08/01/81-11/15/83 FY82: \$547,915 TOTAL: \$989,915
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hofstadter, R. GSFC/Hartman, R. C. 11-Astronomy
GSFC/Campbell, C. E.

NAS 8-32355 **Stanford University** **1471**
Gyro test of general relativity in a satellite
Period *Obligations*
03/11/77-11/30/81 FY82: \$144,928 TOTAL: \$2,513,258
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Everitt, C. W. MSFC/Potter, R. A. 13-Physics

NAS 8-32852 **Stanford University** **1472**
Definition study of plasma depletion experiments during Spacelab
mission 2
Period *Obligations*
10/01/77-08/31/84 FY82: TOTAL: \$66,594
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Darosa, A. V. MSFC/Guynes, B. V. 31-Atmos Sci
MSFC/Ise, R.

NAS 8-33110 **Stanford University** **1473**
Direct observation of interface instability during crystal growth
Period *Obligations*
12/01/78-01/31/82 FY82: TOTAL: \$265,793
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tiller, W. A. MSFC/Reeves, F. A. 19-Phys Sci, NEC
MSFC/Savage, W. A.

NAS 8-33796 **Stanford University** **1474**
A preliminary study of a cryogenic equivalence principle experi-
ment on shuttle
Period *Obligations*
04/30/80-12/31/82 FY82: \$14,000 TOTAL: \$63,861
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Everitt, C. W. MSFC/Decher, R. 31-Atmos Sci
Worden, P. W. MSFC/Peters, P.

NAS 8-34430 **Stanford University** **1475**
Dynamics-A Explorer Rims Data Analysis
Period *Obligations*
09/17/81-03/16/85 FY82: \$46,592 TOTAL: \$46,592
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Banks, P. M. MSFC/Chappell, C. R. 41-Aero Engr
MSFC/Fields, S. A.

NAS 8-34619 **Stanford University** **1476**
Research study: Develop a program for the study of general
relativity theory
Period *Obligations*
11/30/81-01/31/83 FY82: \$1,014,998 TOTAL: \$1,014,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Everitt, C. W. MSFC/Potter, R. 11-Astronomy
Debra, D. B.
Fairbanks, W. M.

NAS 8-34872 **Stanford University** **1477**
Influence of low frequency vibrations on growth of single crystals
from melts and solutions
Period *Obligations*
07/06/82-07/05/83 FY82: \$80,000 TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ferguson, R. S. MSFC/Fogle, V. 47-Materials Engr
Elwell, D.

NAS 9-16050 **Stanford University** **1478**
Cardiovascular effects of weightlessness studied by two-
dimensional, real-time ultrasound
Period *Obligations*
01/17/80-01/31/82 FY82: TOTAL: \$33,934
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Popp, R. L. JSC/Peck, E. E. 59-Life Sci, NEC

NASW 3204 **Stanford University** **1479**
A program of research and research internships in telecom-
munications and information technology
Period *Obligations*
07/01/78-06/30/83 FY82: \$234,512 TOTAL: \$988,164
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dunn, D. HQ-EP/Schrom, J. S. 39-Env Sci, NEC
Agnew, C.

NCA 2-745004 **Stanford University** **1480**
Stable boundary approximations for difference methods for
compressible fluids
Period *Obligations*
04/01/80-09/30/82 FY82: \$3,994 TOTAL: \$27,532
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oliger, J. ARC/Beam, R. M. 22-Computer Science

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NCA 2-745005	Stanford University	1481
A study of the use of multigrad techniques on the relaxation of steady transonic flows		
<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/82	FY82: \$11,323	TOTAL: \$31,849
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Steger, J. L.	ARC/Lomax, H.	41-Aero Engr
NCA 2-745105	Stanford University	1488
Chemical and microstructural characterization of noble metal particles highly dispersed on model supports		
<i>Period</i>	<i>Obligations</i>	
03/01/81-02/28/83	FY82: \$11,570	TOTAL: \$21,053
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boudart, M.	ARC/Poppa, H.	43-Chem Engr
NCA 2-745007	Stanford University	1482
Receptor alterations and stress		
<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/82	FY82: \$30,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Feldman, D.	ARC/Holton, E.	51-Biological Sci
NCA 2-745106	Stanford University	1489
Application of orthogonal polynomial expansions to numerical simulation of fluid flows		
<i>Period</i>	<i>Obligations</i>	
07/01/81-09/30/81	FY82:	TOTAL: \$4,660
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reynolds, W. C.	ARC/Leonard, A.	46-Mech Engr
NCA 2-745008	Stanford University	1483
Cosmological and local effects of the variable cosmological constant		
<i>Period</i>	<i>Obligations</i>	
09/15/80-09/14/82	FY82:	TOTAL: \$26,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petrosian, V.	ARC/Caroff, L. J.	13-Physics
NCA 2-745107	Stanford University	1490
Endocrine effects on rodent bone cells		
<i>Period</i>	<i>Obligations</i>	
07/01/81-08/31/82	FY82:	TOTAL: \$27,272
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Feldman, D.	ARC/Holton, E. M.	56-Medical Sciences
NCA 2-745101	Stanford University	1484
Numerical simulation of separated flows by a vortex tracing algorithm		
<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/82	FY82: \$18,262	TOTAL: \$28,875
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baganoff, D.	ARC/Leonard, A.	41-Aero Engr
NCA 2-745108	Stanford University	1491
Factors influencing orthostatic tolerance and re-entry tolerance following weightlessness simulation		
<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$30,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Debusk, R. F.	ARC/Goldwater, D.	56-Medical Sciences
Haskell, W.		
NCA 2-745102	Stanford University	1485
Distributed operating system for the scientific computer environment		
<i>Period</i>	<i>Obligations</i>	
11/01/80-09/30/81	FY82:	TOTAL: \$28,417
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Owicki, S. S.	ARC/Stevens, K. G.	22-Computer Science
NCA 2-745103	Stanford University	1486
Purification, separation and resolution of amino acids by h.P.i.c		
<i>Period</i>	<i>Obligations</i>	
06/01/81-09/30/82	FY82: \$5,395	TOTAL: \$19,377
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bonner, W. A.	ARC/Desmarais, D. J.	12-Chemistry
NCA 2-745104	Stanford University	1487
Development of time-accurate finite element techniques for first-order hyperbolic systems with particular emphasis on the compressible Euler equations		
<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$15,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hughes, T. R.	ARC/Lomax, H.	46-Mech Engr
NCA 2-745202	Stanford University	1492
The Carbon isotope Biogeochemistry of Krebs Cycle and the development of high performance liquid chromatographic procedures for the Analysis of its Products		
<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$29,993	TOTAL: \$29,993
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bonner, W. A.	ARC/Desmarais, D. J.	12-Chemistry
NCA 2-745203	Stanford University	1493
Detector development for an infrared grating spectrometer		
<i>Period</i>	<i>Obligations</i>	
01/04/82-04/10/82	FY82: \$2,500	TOTAL: \$2,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petrosian, V.	ARC/Erickson, E. F.	11-Astronomy
NCA 2-745204	Stanford University	1494
Transonic asymmetric vortex interaction over slender bodies at high angles of attack		
<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$14,066	TOTAL: \$14,066
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Steger, J. L.	ARC/Schiff, L. B.	41-Aero Engr

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NCA 2-745205	Stanford University	1495	
A chimera scheme for the transonic solution of the Euler equations using a zonal approach			
<i>Period</i>	<i>Obligations</i>		
06/01/82-05/31/83	FY82: \$4,400	TOTAL: \$4,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Steger, J. L.	ARC/Lomax, H.	41-Aero Engr	
NCA 2-745206	Stanford University	1496	
Investigations of the role of Vasopressin in the CNS control of body temperature and metabolism			
<i>Period</i>	<i>Obligations</i>		
06/15/82-06/14/83	FY82: \$3,500	TOTAL: \$3,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Heller, H. C. George, C. P.	ARC/Williams, B. A. ARC/Mehler, W. R.	51-Biological Sci	
NCA 2-745207	Stanford University	1497	
Construction of a 1K bolometer for astronomical observations at millimeter wavelengths			
<i>Period</i>	<i>Obligations</i>		
07/01/82-06/30/83	FY82: \$11,587	TOTAL: \$11,587	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Walker, A. B.	ARC/Werner, M. W. ARC/Roellig, P. L.	11-Astronomy	
NCA 2-745208	Stanford University	1498	
Endocrine modulation of receptors of rodent bone cells			
<i>Period</i>	<i>Obligations</i>		
08/01/82-07/31/84	FY82: \$30,000	TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Feldman, D.	ARC/Holton, E. M.	51-Biological Sci	
NCA 2-745906	Stanford University	1499	
Numerical simulation of the turbulent shear layer using the vortex-in-cell method			
<i>Period</i>	<i>Obligations</i>		
09/01/79-08/31/81	FY82:	TOTAL: \$49,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Buneman, O. Couet, B.	ARC/Leonard, A.	45-Elec Engr	
NCA 2-745911	Stanford University	1500	
Cardiovascular deconditioning and exercise performance			
<i>Period</i>	<i>Obligations</i>		
09/01/79-08/31/81	FY82:	TOTAL: \$46,915	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Debusk, R. F.	ARC/Goldwater, D.	51-Biological Sci	
NCC 2-1	Stanford University	1501	
Development of ultrasonic indices for Space Shuttle passenger selection			
<i>Period</i>	<i>Obligations</i>		
04/01/79-04/30/83	FY82: \$80,000	TOTAL: \$230,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Popp, R.	ARC/Sandler, H.	56-Medical Sciences	
NCC 2-10	Stanford University	1502	
Aerothermodynamic heat shield environments			
<i>Period</i>	<i>Obligations</i>		
09/15/79-09/14/81	FY82:	TOTAL: \$81,385	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bershader, D.	ARC/Howe, J. T. ARC/Nachtsheim, P. R.	42-Astro Engr	
NCC 2-13	Stanford University	1503	
Experimental studies of rotors			
<i>Period</i>	<i>Obligations</i>		
06/01/79-04/30/82	FY82: \$50,000	TOTAL: \$222,515	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Karamcheti, K. Chopra, I.	ARC/Johnson, W. R.	41-Aero Engr	
NCC 2-15	Stanford University	1504	
A cooperative program in the computation of turbulent flows			
<i>Period</i>	<i>Obligations</i>		
07/01/79-10/31/82	FY82: \$75,596	TOTAL: \$243,110	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ferziger, J. H. Reynolds, W. G.	ARC/Rubesin, M. W.	19-Phys Sci, NEC	
NCC 2-21	Stanford University	1505	
Fundamental studies of unsteady turbulent boundary layers			
<i>Period</i>	<i>Obligations</i>		
09/01/79-12/31/82	FY82: \$95,526	TOTAL: \$275,154	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Reynolds, W. G. Parikh, P. G.	ARC/Carr, L. W.	41-Aero Engr	
NCC 2-29	Stanford University	1506	
NASA-Ames/Stanford Joint Institute for Aeronautics and Acoustics: Shuttle infrared telescope pointing control system			
<i>Period</i>	<i>Obligations</i>		
10/01/79-01/31/83	FY82: \$35,738	TOTAL: \$161,665	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Powell, J. D. Vanbezoijen, R. W.	ARC/Lorell, K. R.	42-Astro Engr	
NCC 2-38	Stanford University	1507	
Implantable instrumentation for studies of blood flow distribution			
<i>Period</i>	<i>Obligations</i>		
12/01/79-02/28/82	FY82:	TOTAL: \$165,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Meindl, J. D.	ARC/Sandler, H.	56-Medical Sciences	
NCC 2-44	Stanford University	1508	
Perceptual problems in aeronautics			
<i>Period</i>	<i>Obligations</i>		
11/01/79-10/31/82	FY82: \$114,739	TOTAL: \$300,666	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Karamcheti, K. Wardell, B.	ARC/Ahumada, A. J., Jr. ARC/Nagel, D. C.	69-Psych, NEC	

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NCC 2-46	Stanford University	1509
An investigation of the performance, application potential, and inherent limitations of the new microanalytical instrument: The Auger microprobe		
<i>Period</i>	<i>Obligations</i>	
02/01/80-02/28/82	FY82: TOTAL: \$65,979	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heinemann, K.	ARC/Arnold, J. O.	13-Physics
NCC 2-50	Stanford University	1510
Ultra high resolution molecular beam CARS spectroscopy with applications to planetary atmospheric molecules		
<i>Period</i>	<i>Obligations</i>	
01/01/80-06/30/82	FY82: TOTAL: \$60,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Byer, R. L.	ARC/Chackerians, C.	13-Physics
NCC 2-51	Stanford University	1511
Cardiovascular magnetic measurements		
<i>Period</i>	<i>Obligations</i>	
01/01/80-10/31/82	FY82: TOTAL: \$75,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harrison, D. C.	ARC/Sandler, H.	56-Medical Sciences
NCC 2-52	Stanford University	1512
Biomedical technology transfer		
<i>Period</i>	<i>Obligations</i>	
01/01/80-04/30/82	FY82: \$23,000 TOTAL: \$410,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harrison, D. C.	ARC/Sandler, H.	56-Medical Sciences
NCC 2-55	Stanford University	1513
The research and training activities for the Joint Institute for Aeronautics and Acoustics		
<i>Period</i>	<i>Obligations</i>	
12/01/79-12/31/82	FY82: \$184,225 TOTAL: \$456,651	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Deckert, W. H.	41-Aero Engr
	ARC/Hickey, D. H.	
NCC 2-59	Stanford University	1514
Joint Institute for Aeronautics and Acoustics: Study of trailing edge flows at high Reynolds number		
<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/82	FY82: \$76,585 TOTAL: \$226,174	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Marvin, J. G.	41-Aero Engr
Viswanath, P. R.	ARC/Brown, J.	
NCC 2-62	Stanford University	1515
Stanford/Ames Joint Institute for Aeronautics and Acoustics: Studies of turbulent separation of airfoils and wings		
<i>Period</i>	<i>Obligations</i>	
10/01/79-10/31/81	FY82: TOTAL: \$119,199	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Olson, L. E.	41-Aero Engr
Wadcock, A. J.		
NCC 2-70	Stanford University	1516
The effect of space flight as simulated by bed rest on drug disposition		
<i>Period</i>	<i>Obligations</i>	
01/01/80-06/30/81	FY82: TOTAL: \$88,058	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, H.	ARC/Sandler, H.	56-Medical Sciences
NCC 2-74	Stanford University	1517
Stanford/Ames Joint Institute for Aeronautics and Acoustics: Aerodynamic studies relating to short-haul aircraft		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/83	FY82: \$72,810 TOTAL: \$177,810	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Koenig, D. G.	41-Aero Engr
Ayoub, A.		
NCC 2-75	Stanford University	1518
Stanford/Ames Joint Institute for Aeronautics and Acoustics flight effects on jet noise		
<i>Period</i>	<i>Obligations</i>	
03/01/80-04/30/82	FY82: TOTAL: \$160,289	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Atencio, A.	41-Aero Engr
	ARC/Hickey, D. H.	
NCC 2-76	Stanford University	1519
Joint Institute for Aeronautics and Acoustics: Studies of the effects of fields on noise direction		
<i>Period</i>	<i>Obligations</i>	
03/01/80-07/31/82	FY82: TOTAL: \$125,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Soderman, P. T.	41-Aero Engr
NCC 2-77	Stanford University	1520
Boundary layers and wakes of oscillating airfoils at subsonic and transonic speeds		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/83	FY82: \$117,459 TOTAL: \$335,026	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Schairer, E. T.	41-Aero Engr
NCC 2-82	Stanford University	1521
Photodiagnosics of turbulent flows using laser-induced fluorescence		
<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/83	FY82: \$69,749 TOTAL: \$170,788	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bershadier, D.	ARC/McKenzie, R. L.	41-Aero Engr
NCC 2-89	Stanford University	1522
Studies of rotor aeroacoustics		
<i>Period</i>	<i>Obligations</i>	
06/01/80-09/30/82	FY82: \$166,748 TOTAL: \$702,098	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karamcheti, K.	ARC/Davis, S. S.	41-Aero Engr
Wright, S.		

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NCC 2-97	Stanford University	1523	Development of a three dimensional unsteady transonic full potential algorithm with arbitrary geometry capability
<i>Period</i>	<i>Obligations</i>		
11/01/80-09/30/81	FY82: TOTAL: \$12,897		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Steger, T.	ARC/Morse, H. A.	41-Aero Engr	
	ARC/Caradonna, F. X.		
NCC 2-103	Stanford University	1524	Long term influence of physical aging processes in epoxy matrix composites
<i>Period</i>	<i>Obligations</i>		
11/15/80-10/31/82	FY82: \$63,671 TOTAL: \$118,730		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Heinemann, K.	ARC/Nelson, H. G.	47-Materials Engr	
NCC 2-106	Stanford University	1525	Studies of flight director systems for powered lift aircraft
<i>Period</i>	<i>Obligations</i>		
11/01/80-12/31/82	FY82: \$108,000 TOTAL: \$199,154		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Bryson, A. E.	ARC/Franklin, J. A.	41-Aero Engr	
NCC 2-111	Stanford University	1526	In-situ investigations of graphoepitaxy and small deposit particles
<i>Period</i>	<i>Obligations</i>		
01/01/81-02/28/82	FY82: TOTAL: \$52,545		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Heinemann, K.	ARC/Arnold, J. O.	13-Physics	
NCC 2-113	Stanford University	1527	Mobility aid for the blind
<i>Period</i>	<i>Obligations</i>		
12/01/80-11/30/81	FY82: TOTAL: \$20,870		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Harrison, D. C.	ARC/Lum, H.	49-Engr, NEC	
Lum, H.			
NCC 2-120	Stanford University	1528	Investigation of the properties of doped-silicon on sapphire for far infrared bolometers
<i>Period</i>	<i>Obligations</i>		
03/01/81-08/02/82	FY82: \$6,408 TOTAL: \$41,879		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Geballe, T. H.	ARC/Kittel, P.	13-Physics	
NCC 2-125	Stanford University	1529	Computer simulation of surface and film processes
<i>Period</i>	<i>Obligations</i>		
05/01/81-04/30/83	FY82: \$67,000 TOTAL: \$127,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Tiller, W. A.	ARC/Cooper, D. M.	13-Physics	
NCC 2-126	Stanford University	1530	The effects of simulated weightlessness on regional blood flow specifically during cardiovascular stress
<i>Period</i>	<i>Obligations</i>		
01/01/81-02/28/83	FY82: \$90,000 TOTAL: \$199,980		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Harrison, D. C.	ARC/Sandler, H.	59-Life Sci, NEC	
NCC 2-129	Stanford University	1531	A study of a three dimensional hyperbolic grid generation scheme
<i>Period</i>	<i>Obligations</i>		
02/01/81-08/31/82	FY82: TOTAL: \$8,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Steger, J. L.	ARC/Sorenson, R. L.	29-Math/Cmputer, NEC	
NCC 2-145	Stanford University	1532	Construction of improved measurement system
<i>Period</i>	<i>Obligations</i>		
04/01/81-03/31/82	FY82: TOTAL: \$32,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Steele, C.	ARC/Young, D. R.	56-Medical Sciences	
NCC 2-149	Stanford University	1533	Theoretical studies in aerodynamics
<i>Period</i>	<i>Obligations</i>		
07/01/81-12/31/82	FY82: \$170,186 TOTAL: \$200,186		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Karamchetti, K.	ARC/Davis, S.	41-Aero Engr	
Roberts, L.	ARC/Lee, G.		
NCC 2-150	Stanford University	1534	Study of powered lift aircraft technology
<i>Period</i>	<i>Obligations</i>		
07/01/81-10/31/82	FY82: \$80,000 TOTAL: \$100,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Karamcheti, K.	ARC/Lampkin, B. A.	41-Aero Engr	
NCC 2-177	Stanford University	1535	Perceptual qualities of helicopter-like pulses
<i>Period</i>	<i>Obligations</i>		
01/01/82-12/31/82	FY82: \$21,000 TOTAL: \$21,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Karamcheti, K.	ARC/Ahumada, A. J.	69-Psych, NEC	
	ARC/Nagel, D. C.		
NCC 2-188	Stanford University	1536	Tomographic reconstruction methods for use in rotorblade research
<i>Period</i>	<i>Obligations</i>		
06/01/82-05/31/83	FY82: \$29,934 TOTAL: \$29,934		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Hesselink, P. I.	ARC/Yu, Y. H.	41-Aero Engr	
	ARC/Kittleston, J. K.		

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<p>NCC 2-198 Jet in cross flow <i>Period</i> 02/01/82-01/31/84 <i>Prin. Invest.</i> Karamcheti, K. Krothapalli, K. Leopold, D.</p>	<p>Stanford University <i>Obligations</i> FY82: \$24,840 NASA Tech. Officer ARC/Aoyagi, K. ARC/Koenig, D. G.</p>	<p>1537 <i>Obligations</i> TOTAL: \$24,840 <i>CASE Category</i> 41-Aero Engr</p>	<p>NGL 05-020-272 Theoretical study of the solar atmosphere and the structure of active regions <i>Period</i> 06/07/68-09/30/82 <i>Prin. Invest.</i> Sturrock, P. A.</p>	<p>Stanford University <i>Obligations</i> FY82: \$100,000 NASA Tech. Officer HQ-EZ/Chipman, E. C.</p>	<p>1544 <i>Obligations</i> TOTAL: \$1,230,196 <i>CASE Category</i> 13-Physics</p>
<p>NCC 2-212 Studies of the effects of flow fields on noise directivity <i>Period</i> 08/01/82-07/31/83 <i>Prin. Invest.</i> Karamcheti, K.</p>	<p>Stanford University <i>Obligations</i> FY82: \$60,000 NASA Tech. Officer ARC/Soderman, P. T.</p>	<p>1538 <i>Obligations</i> TOTAL: \$60,000 <i>CASE Category</i> 41-Aero Engr</p>	<p>NGL 05-020-582 Abiotic origins of optical activity <i>Period</i> 04/18/72-04/30/83 <i>Prin. Invest.</i> Bonner, W. A.</p>	<p>Stanford University <i>Obligations</i> FY82: \$39,101 NASA Tech. Officer HQ-EB/Devincenzi, D. L.</p>	<p>1545 <i>Obligations</i> TOTAL: \$390,106 <i>CASE Category</i> 59-Life Sci, NEC</p>
<p>NGL 05-020-007 Guidance and control of flight vehicles <i>Period</i> 08/17/72-08/14/84 <i>Prin. Invest.</i> Bryson, A. E.</p>	<p>Stanford University <i>Obligations</i> FY82: \$1,774,564 NASA Tech. Officer ARC/Erzberger, H.</p>	<p>1539 <i>Obligations</i> TOTAL: \$1,774,564 <i>CASE Category</i> 49-Engr, NEC</p>	<p>NGR 05-020-452 Instrumentation study development for high energy physics experiment in space <i>Period</i> 06/09/70-12/31/81 <i>Prin. Invest.</i> Hofstadter, R.</p>	<p>Stanford University <i>Obligations</i> FY82: \$2,342,941 NASA Tech. Officer HQ-EZ/Kaluzienski, L. J.</p>	<p>1546 <i>Obligations</i> TOTAL: \$2,342,941 <i>CASE Category</i> 11-Astronomy</p>
<p>NGL 05-020-008 A study of the effects on the Earth's environment of very low frequency radiation into the magnetosphere from electrical transmission lines and ground based very low frequency transmitters <i>Period</i> 09/01/61-02/28/83 <i>Prin. Invest.</i> Helliwell, R. A.</p>	<p>Stanford University <i>Obligations</i> FY82: \$190,000 NASA Tech. Officer HQ-EE/Benson, R. F. HQ-EZ/Schmerling, E. R.</p>	<p>1540 <i>Obligations</i> TOTAL: \$2,285,440 <i>CASE Category</i> 13-Physics</p>	<p>NGR 05-020-456 Effects of altered gravitational stress on fluid balance and circulation of blood <i>Period</i> 05/01/70-01/31/83 <i>Prin. Invest.</i> Luetscher, J. A.</p>	<p>Stanford University <i>Obligations</i> FY82: \$30,000 NASA Tech. Officer ARC/Keil, L. C.</p>	<p>1547 <i>Obligations</i> TOTAL: \$422,090 <i>CASE Category</i> 56-Medical Sciences</p>
<p>NGL 05-020-014 Theoretical and experimental radio and radar studies of lunar, planetary ionospheres, atmospheres, and surfaces of Sun and interplanetary medium <i>Period</i> 04/30/63-09/30/82 <i>Prin. Invest.</i> Eshleman, V. R.</p>	<p>Stanford University <i>Obligations</i> FY82: \$160,000 NASA Tech. Officer HQ-EL/Brinton, H. C. HQ-EL/Brunk, W. E.</p>	<p>1541 <i>Obligations</i> TOTAL: \$3,916,351 <i>CASE Category</i> 31-Atmos Sci</p>	<p>NGR 05-020-559 Structure of solar magnetic and velocity fields <i>Period</i> 03/22/72-11/30/82 <i>Prin. Invest.</i> Wilcox, J. M.</p>	<p>Stanford University <i>Obligations</i> FY82: \$114,472 NASA Tech. Officer HQ-EZ/Chipman, E.</p>	<p>1548 <i>Obligations</i> TOTAL: \$956,472 <i>CASE Category</i> 11-Astronomy</p>
<p>NGL 05-020-176 Investigation of space-related whistler propagation phenomena in laboratory plasmas <i>Period</i> 03/02/67-01/31/83 <i>Prin. Invest.</i> Crawford, F. W.</p>	<p>Stanford University <i>Obligations</i> FY82: \$49,900 NASA Tech. Officer HQ-EE/Lynch, J. T. HQ-EE/Schmerling, E. R.</p>	<p>1542 <i>Obligations</i> TOTAL: \$1,422,100 <i>CASE Category</i> 19-Phys Sci, NEC</p>	<p>NGR 05-020-634 Biomedical technology transfer <i>Period</i> 12/07/72-04/30/82 <i>Prin. Invest.</i> Harrison, D. C.</p>	<p>Stanford University <i>Obligations</i> FY82: \$1,531,488 NASA Tech. Officer ARC/Sandler, H.</p>	<p>1549 <i>Obligations</i> TOTAL: \$1,531,488 <i>CASE Category</i> 56-Medical Sciences</p>
<p>NGL 05-020-243 Refined methods of aeroelastic analysis and optimization <i>Period</i> 08/14/67-08/31/84 <i>Prin. Invest.</i> Ashley, H.</p>	<p>Stanford University <i>Obligations</i> FY82: \$20,000 NASA Tech. Officer LARC/Doggett, R. V., Jr.</p>	<p>1543 <i>Obligations</i> TOTAL: \$249,764 <i>CASE Category</i> 41-Aero Engr</p>	<p>NGR 05-020-649 Study of lunar and planetary surfaces <i>Period</i> 03/06/73-03/31/83 <i>Prin. Invest.</i> Howard, H. T.</p>	<p>Stanford University <i>Obligations</i> FY82: \$25,000 NASA Tech. Officer HQ-EL/Boyce, J. M. HQ-EL/Holt, H. E.</p>	<p>1550 <i>Obligations</i> TOTAL: \$198,170 <i>CASE Category</i> 32-Geological Sci</p>
<p>NGL 05-020-243 Refined methods of aeroelastic analysis and optimization <i>Period</i> 08/14/67-08/31/84 <i>Prin. Invest.</i> Ashley, H.</p>	<p>Stanford University <i>Obligations</i> FY82: \$20,000 NASA Tech. Officer LARC/Doggett, R. V., Jr.</p>	<p>1543 <i>Obligations</i> TOTAL: \$249,764 <i>CASE Category</i> 41-Aero Engr</p>	<p>NGR 05-020-668 Magnetosphere structure and radiation mechanisms on pulsars <i>Period</i> 11/01/73-11/30/82 <i>Prin. Invest.</i> Sturrock, P. A.</p>	<p>Stanford University <i>Obligations</i> FY82: \$40,000 NASA Tech. Officer HQ-EZ/Kaluzienski, L. J. HQ-EZ/Opp, A. G.</p>	<p>1551 <i>Obligations</i> TOTAL: \$267,500 <i>CASE Category</i> 11-Astronomy</p>

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGT 05-020-412	Stanford University	1552
A summer program of NASA summer faculty fellowships		
<i>Period</i>	<i>Obligations</i>	
12/16/69-03/31/83	FY82: \$278,124	TOTAL: \$2,221,515
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bershader, D. Mayers, J.	HQ-LB/Carter, C. H.	49-Engr, NEC
NGT 05-020-800	Stanford University	1553
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
09/01/80-09/30/82	FY82:	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zare, R. N.	HQ-LB/Carter, C. H.	12-Chemistry
NGT 05-020-801	Stanford University	1554
Graduate student training program in computational fluid dynamics		
<i>Period</i>	<i>Obligations</i>	
07/01/80-12/31/82	FY82: \$100,000	TOTAL: \$275,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chapman, D. R.	HQ-RT/Graves, R. A., Jr.	41-Aero Engr
NGT 05-020-802	Stanford University	1555
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
06/15/81-08/31/82	FY82:	TOTAL: \$13,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Steger, J. L.	HQ-LB/Carter, C. H.	41-Aero Engr
NGT 05-020-803	Stanford University	1556
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
06/01/81-11/30/82	FY82:	TOTAL: \$11,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, A. B., Jr.	HQ-LB/Carter, C. H.	11-Astronomy
NGT 05-020-804	Stanford University	1557
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$11,100	TOTAL: \$11,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petrosian, V.	HQ-LB/Carter, C. H.	13-Physics
NSG 2121	Stanford University	1558
Preliminary design and computer simulation of a very large Fourier transform processor for the inter-stellar search system		
<i>Period</i>	<i>Obligations</i>	
01/01/76-10/31/82	FY82: \$252,500	TOTAL: \$703,871
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peterson, A. M.	ARC/Wolfe, J. H. ARC/Fillingham, J.	49-Engr, NEC
NSG 2359	Stanford University	1559
Aerodynamics, aeroelasticity and stability of hang gliders		
<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/81	FY82:	TOTAL: \$77,429
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ashley, H.	ARC/Ciffone, D. L.	41-Aero Engr
NSG 2400	Stanford University	1560
Control of V/STOL aircraft in ground effect		
<i>Period</i>	<i>Obligations</i>	
08/01/79-12/31/82	FY82: \$20,000	TOTAL: \$57,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Debra, D. B. Bryson, A. E.	ARC/Franklin, J. A.	41-Aero Engr
NSG 4002	Stanford University	1561
Theoretical and experimental investigations in the control of aircraft		
<i>Period</i>	<i>Obligations</i>	
09/01/74-12/31/82	FY82: \$51,161	TOTAL: \$526,161
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Debra, D. B. Ashley, H. Breakwell, J. V.	DFRF/Gilyard, G. B.	41-Aero Engr
NSG 5131	Stanford University	1562
Spectroscopy of cosmic X-ray sources of the solar corona		
<i>Period</i>	<i>Obligations</i>	
11/15/76-12/31/82	FY82: \$175,000	TOTAL: \$1,060,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, A. B. Underwood, J. H.	GSFC/Early, L. J. WFC/Pless, R. H.	13-Physics
NSG 5417	Stanford University	1563
Determination of interstellar abundances by correlated X-ray and ultraviolet observations		
<i>Period</i>	<i>Obligations</i>	
10/01/79-06/30/81	FY82:	TOTAL: \$24,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, A. B. Stern, R. A. Antiochos, S. K.	GSFC/Bogges, A.	11-Astronomy
NSG 7092	Stanford University	1564
Energy release in solar flares based on OSO-5 data		
<i>Period</i>	<i>Obligations</i>	
10/01/74-11/30/82	FY82: \$52,499	TOTAL: \$357,499
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petrosian, V.	HQ-EZ/Chipman, E.	11-Astronomy
NSG 7204	Stanford University	1565
Theoretical analyses of relativistic gravitational experiments		
<i>Period</i>	<i>Obligations</i>	
10/01/75-03/31/82	FY82:	TOTAL: \$109,785
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Will, C. M.	HQ-EZ/Weiler, E. J.	11-Astronomy
NSG 7395	Stanford University	1566
Radar studies of the Martian surface		
<i>Period</i>	<i>Obligations</i>	
03/15/78-07/31/82	FY82:	TOTAL: \$32,226
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tyler, G. L.	HQ-EL/Brunk, W. E. HQ-EL/Quaide, W. L.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 7552 Stanford University 1567
 Analysis of coronal flow and wave phenomena during the solar
 occultation of the Viking Earth radio link
Period *Obligations*
 10/01/78-11/30/82 FY82: \$63,600 TOTAL: \$210,482
Prin. Invest. NASA Tech. Officer CASE Category
 Tyler, G. L. HQ-EZ/Chipman, E. 13-Physics

NSG 7561 Stanford University 1568
 Reduction and analyses of Viking bistatic radar observations of
 Mars from the winter 1977/1978 apparition
Period *Obligations*
 03/01/79-03/31/82 FY82: TOTAL: \$172,344
Prin. Invest. NASA Tech. Officer CASE Category
 Tyler, G. L. HQ-EL/Brunk, W. E. 11-Astronomy
 HQ-EL/Murphy, R. E.

NAG 2-19 University of California - Berkeley 1569
 A study of methods for improving capacity at major airports
Period *Obligations*
 01/01/80-01/19/82 FY82: TOTAL: \$59,762
Prin. Invest. NASA Tech. Officer CASE Category
 Kanafani, A. ARC/Forrest, R. D. 41-Aero Engr
 Hockaday, S. L. ARC/Faye, A. E.
 Gosling, G. D.

NAG 2-102 University of California - Berkeley 1570
 Superconducting receivers for near-millimeter wave lengths
Period *Obligations*
 03/01/81-02/28/83 FY82: \$30,000 TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
 Richards, P. L. ARC/Kittel, P. 13-Physics
 ARC/Lum, H.

NAG 2-200 University of California - Berkeley 1571
 Two new approaches to unanswered question about star
 formation regions
Period *Obligations*
 11/01/82-10/31/83 FY82: \$14,000 TOTAL: \$14,000
Prin. Invest. NASA Tech. Officer CASE Category
 McKee, C. F. ARC/Haughney, L. C. 11-Astronomy
 Jaffe, D.

NAG 3-88 University of California - Berkeley 1572
 Coherent conversion of the sunlight spectrum
Period *Obligations*
 07/28/80-04/30/82 FY82: TOTAL: \$50,000
Prin. Invest. NASA Tech. Officer CASE Category
 Gustafson, T. K. LERC/Anderson, L. M. 13-Physics

NAG 3-111 University of California - Berkeley 1573
 First-phase research and conceptual analysis for commercializa-
 tion of redox energy storage and phosphoric acid fuel cell
 system
Period *Obligations*
 10/01/80-01/30/82 FY82: TOTAL: \$196,783
Prin. Invest. NASA Tech. Officer CASE Category
 Sullivan, L. A. LERC/Bollenbacher, G. 99-Multi-Discip

NAG 3-131 University of California - Berkeley 1574
 Numerical modeling of turbulent combustion
Period *Obligations*
 11/28/80-11/26/82 FY82: \$66,315 TOTAL: \$135,315
Prin. Invest. NASA Tech. Officer CASE Category
 Oppenheim, A. K. LERC/Marek, C. J. 41-Aero Engr
 Chorin, A. J.

NAG 3-137 University of California - Berkeley 1575
 Study of jet ignition using liquid fuels
Period *Obligations*
 12/08/80-12/06/82 FY82: \$100,456 TOTAL: \$190,421
Prin. Invest. NASA Tech. Officer CASE Category
 Oppenheim, A. K. LERC/Schock, H. J. 46-Mech Engr
 LERC/Willis, E. A.

NAG 3-146 University of California - Berkeley 1576
 Surface tension phenomena under low and zero gravity condi-
 tions
Period *Obligations*
 01/07/81-01/30/83 FY82: \$13,131 TOTAL: \$40,031
Prin. Invest. NASA Tech. Officer CASE Category
 Concus, K. LERC/Chai, A. T. 13-Physics

NAG 5-55 University of California - Berkeley 1577
 Study of chromospheric activity in spectroscopic binary systems
Period *Obligations*
 05/01/80-10/31/81 FY82: TOTAL: \$15,934
Prin. Invest. NASA Tech. Officer CASE Category
 Kuhl, L. GSFC/Boggess, A. 11-Astronomy

NAG 5-69 University of California - Berkeley 1578
 Eclipse coverage of selected variable and binary stars
Period *Obligations*
 06/01/80-05/31/83 FY82: \$5,800 TOTAL: \$47,800
Prin. Invest. NASA Tech. Officer CASE Category
 Bowyer, C. S. GSFC/Kondo, Y. 11-Astronomy
 Clarke, J. T.
 Basri, G. S.

NAG 5-95 University of California - Berkeley 1579
 Research relative to low noise amplifiers for radio astronomy
Period *Obligations*
 09/01/80-10/31/82 FY82: \$145,612 TOTAL: \$185,556
Prin. Invest. NASA Tech. Officer CASE Category
 Welch, W. J. GSFC/Clark, T. A. 45-Elec Engr
 Backer, D. C. GSFC/Wildes, W. T.

NAG 5-117 University of California - Berkeley 1580
 Long term X-ray observations of systems with unusual optical
 counterparts
Period *Obligations*
 10/01/80-09/30/81 FY82: TOTAL: \$4,582
Prin. Invest. NASA Tech. Officer CASE Category
 Bowyer, C. S. GSFC/Corrigan, J. P. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 5-139 University of California - Berkeley 1581
Equatorial extreme far ultraviolet airglow
Period *Obligations*
02/01/81-04/30/82 FY82: TOTAL: \$16,963
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowyer, S. GSFC/Spencer, N. W. 31-Atmos Sci
Paresce, F.

NAG 8-381 University of California - Berkeley 1588
An X-ray study of pre-main sequence stars in NGC 2264 with the HRI
Period *Obligations*
09/22/80-09/21/81 FY82: TOTAL: \$7,475
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kuhi, L. MSFC/Stone, J. F. 11-Astronomy

NAG 5-168 University of California - Berkeley 1582
Observations of high velocity clouds
Period *Obligations*
05/01/81-04/30/82 FY82: TOTAL: \$3,552
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weaver, H. F. GSFC/Boggess, A. 11-Astronomy
Crutcher, R. M.

NAG 8-397 University of California - Berkeley 1589
Spectra of 3 T Tauri stars
Period *Obligations*
06/18/81-06/17/82 FY82: TOTAL: \$7,755
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kuhi, L. MSFC/Stone, J. F. 11-Astronomy

NAG 5-278 University of California - Berkeley 1583
The ultraviolet excess in T Tauri stars
Period *Obligations*
09/15/82-09/14/83 FY82: \$8,900 TOTAL: \$8,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kuhi, L. V. GSFC/Kondo, Y. 11-Astronomy
Basri, G. S.

NAG 8-440 University of California - Berkeley 1590
Rotation-activity connection in single F0-G5 stars RS Cvn survey follow-up, an investigation of the two component corona, rapidly rotating G giants: The FK Comae stars
Period *Obligations*
08/01/82-07/31/83 FY82: \$7,500 TOTAL: \$7,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowyer, C. S. MSFC/Stone, J. F. 11-Astronomy
Walter, F.

NAG 6-10 University of California - Berkeley 1584
Sounding rocket research program
Period *Obligations*
11/01/80-10/31/82 FY82: \$191,000 TOTAL: \$191,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mozer, F. S. GSFC/Early, L. J. 19-Phys Sci, NEC

NAG 8-446 University of California - Berkeley 1591
Studies of highly variable galactic X-ray sources with HEAO-1
Period *Obligations*
09/15/82-09/14/83 FY82: \$10,200 TOTAL: \$10,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Price, P. B. MSFC/Stone, J. F. 11-Astronomy
Cominsky, L.

NAG 8-301 University of California - Berkeley 1585
Improved positions of HEAO-1 low energy X-ray sources, an X-ray and optical study of nearby Seyfert 2 and emission line galaxies
Period *Obligations*
03/01/80-06/30/81 FY82: TOTAL: \$19,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowyer, C. S. MSFC/Jones, J. B. 11-Astronomy
Mason, K.
Phillips, M. M.

NAGW 44 University of California - Berkeley 1592
The nature of dwarf novae and related systems
Period *Obligations*
03/01/80-02/28/82 FY82: TOTAL: \$29,936
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lampton, M. L. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
HQ-EZ/Holt, S. S.

NAG 8-351 University of California - Berkeley 1586
High Energy Astronomical Observatory-2 guest investigator program: A high resolution study of a very distant rich and luminous cluster of galaxies
Period *Obligations*
06/25/80-11/25/81 FY82: TOTAL: \$7,766
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Silk, J. I. MSFC/Swearingen, J. C. 11-Astronomy

NAGW 66 University of California - Berkeley 1593
Microwave and theoretical studies related to the COBE satellite mission
Period *Obligations*
07/01/80-06/30/83 FY82: \$16,000 TOTAL: \$46,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smoot, G. F. HQ-EZ/Boggess, N. W. 11-Astronomy
HQ-EZ/Weiler, E. J.

NAG 8-373 University of California - Berkeley 1587
Coordinated X-ray, optical and radio observations
Period *Obligations*
09/15/80-09/14/81 FY82: TOTAL: \$23,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowyer, C. S. MSFC/Stone, J. F. 11-Astronomy

NAGW 75 University of California - Berkeley 1594
Theoretical study of auroral arc formation
Period *Obligations*
06/01/80-05/31/83 FY82: \$129,000 TOTAL: \$345,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hudson, M. K. HQ-EE/Butler, D. M. 13-Physics

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAGW 211 University of California - Berkeley 1595
Conference on thioredoxins
Period *Obligations*
06/01/81-09/30/82 FY82: \$25,000 TOTAL: \$40,280
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buchanan, B. B. HQ-EB/Devincenzi, D. L. 51-Biological Sci

NAGW 239 University of California - Berkeley 1596
Geotropic stimulus production in roots of corn
Period *Obligations*
08/01/81-10/31/83 FY82: \$44,170 TOTAL: \$79,569
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feldman, L. J. HQ-EB/Halstead, T. W. 51-Biological Sci

NAGW 270 University of California - Berkeley 1597
Quantitative spectroscopy of comets
Period *Obligations*
12/01/81-11/30/82 FY82: \$13,192 TOTAL: \$13,192
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spinrad, H. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Brinton, H. C.

NAGW 282 University of California - Berkeley 1598
The spectral evolution of distant galaxies
Period *Obligations*
02/01/82-07/31/83 FY82: \$18,085 TOTAL: \$18,085
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spinrad, H. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Boggess, N. W.

NAGW 369 University of California - Berkeley 1599
Submillimeter detectors for space application
Period *Obligations*
09/01/82-08/31/83 FY82: \$35,303 TOTAL: \$35,303
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Richards, P. L. HQ-EZ/Boggess, N. W. 13-Physics

NAGW 370 University of California - Berkeley 1600
A study of the atmospheric and ionospheric reseyo satellites observations of 300-1400 A aerglow
Period *Obligations*
10/01/82-09/30/83 FY82: \$20,300 TOTAL: \$20,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowyer, C. S. HQ-EE/Lynch, J. T. 19-Phys Sci, NEC
HQ-EE/Schmerling, E. R.

NAS 2-10504 University of California - Berkeley 1601
Scale relationships in mammalian metabolism in weightlessness
Period *Obligations*
01/17/80-11/16/81 FY82: TOTAL: \$45,133
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pace, N. ARC/Ferandin, J. A. 51-Biological Sci

NAS 2-10658 University of California - Berkeley 1602
Metabolic rate and thyroid function in the monkey subjects of the Cosmos 81 mission
Period *Obligations*
06/01/80-07/31/83 FY82: \$7,164 TOTAL: \$37,164
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pace, N. ARC/Souza, K. 51-Biological Sci
ARC/Heinrich, M.

NAS 5-20079 University of California - Berkeley 1603
Energetic particles flux experiment for international Sun-Earth Explorer mother and daughter spacecraft
Period *Obligations*
05/23/74-12/31/81 FY82: TOTAL: \$1,429,290
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, K. A. GSFC/Kowalski, G. E. 13-Physics

NAS 5-20995 University of California - Berkeley 1604
Isotopic composition of primary cosmic rays H thru FE for ISEE C spacecraft
Period *Obligations*
03/19/75-12/15/82 FY82: TOTAL: \$1,880,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heckman, H. H. GSFC/Wales, R. O. 13-Physics

NAS 5-22307 University of California - Berkeley 1605
Solar X-ray and interplanetary and solar electrons for the ISEE-C spacecraft
Period *Obligations*
04/11/75-12/31/83 FY82: TOTAL: \$1,725,719
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, K. A. GSFC/Wales, R. O. 32-Geological Sci
GSFC/Corrigan, J. P.

NAS 5-24445 University of California - Berkeley 1606
Development of instrumentation for an extreme ultraviolet Explorer
Period *Obligations*
02/28/78-10/02/82 FY82: \$40,000 TOTAL: \$884,637
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowyer, C. S. GSFC/Willis, S. E. 11-Astronomy
Lampton, M.
Paresce, F.

NAS 5-25007 University of California - Berkeley 1607
Microwave and theoretical studies for Cosmic Background Explorer (COBE) satellite
Period *Obligations*
03/01/78-03/01/83 FY82: \$156,169 TOTAL: \$449,488
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smoot, G. F. GSFC/Mather, J. C. 11-Astronomy
GSFC/Donohoe, M. J.

NAS 5-25070 University of California - Berkeley 1608
Provide engineering and consulting services to the space telescope instrument science team
Period *Obligations*
05/20/78-01/31/84 FY82: \$37,000 TOTAL: \$153,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
King, I. GSFC/Hobbs, R. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
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NAS 5-25770 University of California - Berkeley 1609
International-Sun-Earth Explorers-A data reduction and analysis for the quasi-electric fields experiment

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/82	FY82: \$169,353	TOTAL: \$496,733
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mozer, F. S.	GSFC/Wales, R. O.	11-Astronomy

NAS 8-32577 University of California - Berkeley 1616
Spacelab mission 1 experiment 95 far UV observations using the Faust instrument on the first Spacelab mission

<i>Period</i>	<i>Obligations</i>	
05/10/77-02/29/84	FY82: \$248,000	TOTAL: \$876,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowyer, S.	MSFC/Jones, C. T.	11-Astronomy
Lampton, M.	MSFC/Eady, R.	

NAS 5-25892 University of California - Berkeley 1610
Solar X-ray flare experiment for the International Solar Polar Mission

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/83	FY82:	TOTAL: \$47,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, D. A.	GSFC/Porreca, G.	11-Astronomy
Lin, R. P.	GSFC/Cline, T. L.	

NAS 9-14565 University of California - Berkeley 1617
Study development of improved photointerpretative techniques to wheat identification

<i>Period</i>	<i>Obligations</i>	
05/15/75-06/30/82	FY82: \$28,600	TOTAL: \$1,942,803
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Colwell, R. N.	JSC/Browne, I. D.	39-Env Sci, NEC

NAS 5-25980 University of California - Berkeley 1611
International Sun-Earth Explorers-A and -B data reduction and analysis for the energetic particles flux experiment

<i>Period</i>	<i>Obligations</i>	
11/01/79-09/30/83	FY82: \$315,000	TOTAL: \$855,745
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, K. A.	GSFC/Wales, R. O.	11-Astronomy

NAS 9-15987 University of California - Berkeley 1618
Reformat and documentation of a survey planning model

<i>Period</i>	<i>Obligations</i>	
10/02/79-09/30/80	FY82:	TOTAL: \$26,194
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wensel, L. C.	JSC/Hancock, K. J.	39-Env Sci, NEC

NAS 5-26837 University of California - Berkeley 1612
Data analysis of HEAO-1, a low energy experiment

<i>Period</i>	<i>Obligations</i>	
01/15/82-03/31/83	FY82: \$68,800	TOTAL: \$68,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	GSFC/Bullock, G. D.	11-Astronomy

NAS 9-16413 University of California - Berkeley 1619
Development, implementation and evaluation of methods for incorporating expertise in analysis of remotely sensed and other data

<i>Period</i>	<i>Obligations</i>	
11/01/81-12/31/82	FY82: \$99,900	TOTAL: \$99,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Colwell, R. N.	JSC/Wade, L.	29-Math/Computer, NEC

NAS 5-26847 University of California - Berkeley 1613
Study of electric field instruments for the open polar plasma laboratory (PPL) and geomagnetic tail laboratory (GTL) satellites

<i>Period</i>	<i>Obligations</i>	
05/07/82-08/07/83	FY82: \$84,000	TOTAL: \$84,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mozer, F. S.	GSFC/O'brien, J. J.	13-Physics

NASW 3575 University of California - Berkeley 1620
Complete positive ions, electrons and ram negative ion measurements near comet Halley

<i>Period</i>	<i>Obligations</i>	
03/15/82-09/30/86	FY82: \$195,000	TOTAL: \$195,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, R. P.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NAS 5-26855 University of California - Berkeley 1614
Definition study of 3-D plasma and energetic particle distribution under the OPEN (origin of plasmas in the Earth's neighborhood project)

<i>Period</i>	<i>Obligations</i>	
05/08/82-08/08/83	FY82: \$78,000	TOTAL: \$78,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, R. P.	GSFC/O'brien, J. J.	13-Physics

NASW 3636 University of California - Berkeley 1621
Conduct an extreme ultraviolet (EUV) investigation for the extreme ultraviolet Explorer (EUVE) project

<i>Period</i>	<i>Obligations</i>	
06/01/82-09/30/83	FY82: \$175,000	TOTAL: \$175,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowyer, S.	HQ-EZ/Weinreb, M.	49-Engr, NEC
	HQ-EZ/Newton, G.	

NAS 5-26867 University of California - Berkeley 1615
Theoretical study of wave particle interaction under the OPEN project

<i>Period</i>	<i>Obligations</i>	
05/07/82-08/06/83	FY82: \$29,000	TOTAL: \$29,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hudson, M. K.	GSFC/O'brien, J. J.	11-Astronomy

NCA 2-50001 University of California - Berkeley 1622
Influence of fluid rheology and air resistance on the behavior of liquid jets and drops

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/81	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goren, S. L.	ARC/Altman, R. L.	12-Chemistry

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NCA 2-50002 University of California - Berkeley 1623
Primitive photobiological mechanisms of salt transport
Period *Obligations*
10/01/79-09/30/81 FY82: TOTAL: \$47,426
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Packer, L. ARC/Klein, H. P. 51-Biological Sci

NCA 2-50006 University of California - Berkeley 1624
Microwave measurement of snow wetness accumulation
Period *Obligations*
09/01/80-08/31/83 FY82: TOTAL: \$17,693
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Angelakos, D. ARC/Linlor, W. I. 39-Env Sci, NEC

NCA 2-50101 University of California - Berkeley 1625
Design and analysis of radiating boundary conditions and difference schemes for nonlinear fluid flow
Period *Obligations*
10/01/80-12/31/81 FY82: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Majda, A. ARC/Warming, R. F. 21-Mathematics

NCA 2-50102 University of California - Berkeley 1626
Dynamics of the rings of Saturn
Period *Obligations*
01/01/81-12/31/82 FY82: TOTAL: \$8,314
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shu, F. H. ARC/Cuzzi, J. N. 11-Astronomy

NCA 2-50103 University of California - Berkeley 1627
Evaluation and assessment of methodology for estimating user requirements as a component of the energy needs design study
Period *Obligations*
03/01/81-06/30/82 FY82: \$1,995 TOTAL: \$9,253
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Snow, T. P. ARC/Norman, S. M. 39-Env Sci, NEC
ARC/Padrick, B. D.

NCA 2-50202 University of California - Berkeley 1628
Structure modeling of bacteriorhodopsin, a light converter in halobacterium halobium
Period *Obligations*
10/01/81-09/30/83 FY82: \$20,044 TOTAL: \$20,044
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Packer, L. ARC/MacElroy, R. D. 54-Env Biology

NCA 2-50203 University of California - Berkeley 1629
Theoretical study of the hydromagnetic collapse of protostellar clouds
Period *Obligations*
11/01/81-08/31/83 FY82: \$12,100 TOTAL: \$12,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shu, F. ARC/Cassen, P. M. 31-Atmos Sci
Terebey, S. ARC/Black, D. C.

NCA 2-50204 University of California - Berkeley 1630
Solvent interactions with nucleicacids: Effects on structure and interactions
Period *Obligations*
01/01/82-12/31/83 FY82: \$29,878 TOTAL: \$29,878
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tinoco, I. ARC/MacElroy, R. D. 43-Chem Engr

NCA 2-50205 University of California - Berkeley 1631
Determination of the amphibian dorsal-ventral axis by gravity and the hypogravity of spaceflight
Period *Obligations*
07/01/82-06/30/84 FY82: \$6,000 TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gerhart, J. C. ARC/Souza, K. A. 51-Biological Sci

NCA 2-50905 University of California - Berkeley 1632
Optimal additives to produce anti-misting fuels
Period *Obligations*
09/15/79-03/31/82 FY82: TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, M. C. ARC/Altman, R. A. 12-Chemistry
Grens, E. A.

NCC 2-36 University of California - Berkeley 1633
Selected target search for extra-terrestrial intelligence observations using very long base interferometry techniques and pattern recognition studies
Period *Obligations*
10/16/79-10/31/82 FY82: \$50,795 TOTAL: \$163,406
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowyer, C. S. ARC/Billingham, J. 99-Multi-Discip
Tarter, J. ARC/Wolfe, J. H.

NCC 2-54 University of California - Berkeley 1634
Irrigated lands assessments for water management
Period *Obligations*
01/01/80-12/31/82 FY82: \$99,600 TOTAL: \$470,113
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Colwell, R. N. ARC/Bauer, E. H. 19-Phys Sci, NEC

NCC 2-67 University of California - Berkeley 1635
Control and modeling of a CELSS (controlled ecology life support system)
Period *Obligations*
03/01/80-11/30/82 FY82: \$50,000 TOTAL: \$204,648
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Auslander, D. M. ARC/MacElroy, R. D. 46-Mech Engr
Spear, R. C.
Tomizuka, M.

NCC 2-86 University of California - Berkeley 1636
Flight management systems
Period *Obligations*
06/01/80-11/30/82 FY82: \$122,970 TOTAL: \$274,297
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stark, L. ARC/Ellis, S. R. 99-Multi-Discip

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NCC 2-105 University of California - Berkeley 1637
Solar wind parameters beyond 1 Pioneer 10 and 11

<i>Period</i>	<i>Obligations</i>	
11/01/80-10/31/81	FY82: TOTAL: \$41,519	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, K. A.	ARC/Barnes, A.	13-Physics
Kayser, S. E.	ARC/Mihalov, J. D.	

NCC 2-205 University of California - Berkeley 1644
Remote sensing research for agricultural applications

<i>Period</i>	<i>Obligations</i>	
08/01/82-07/30/83	FY82: \$70,000 TOTAL: \$70,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Colwell, R. N.	ARC/Bauer, E. H.	55-Agriculture Sci
Wall, S. L.		

NCC 2-140 University of California - Berkeley 1638
Ignition properties of anti-misting fuels

<i>Period</i>	<i>Obligations</i>	
07/01/81-09/30/81	FY82: TOTAL: \$5,288	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grens, E. A.	ARC/Altman, R. L.	12-Chemistry

NGL 05-003-003 University of California - Berkeley 1645
Study of extraterrestrial life using reflection spectra as a basis

<i>Period</i>	<i>Obligations</i>	
08/01/60-10/31/81	FY82: TOTAL: \$4,260,081	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Calvin, M.	HQ-EB/Devincenzi, D. L.	
Burlingame, A. L.		32-Geological Sci

NCC 2-142 University of California - Berkeley 1639
Detection, identification, and precise location of infrared objects

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$62,493 TOTAL: \$118,528	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heiles, C. E.	ARC/Erickson, E. F.	11-Astronomy
Cohen, M.	ARC/Reynolds, R. T.	

NGL 05-003-017 University of California - Berkeley 1646
Investigation of high energy solar flare radiation and trapped radiation, including balloon-borne and sounding rocket tests of prototype detectors

<i>Period</i>	<i>Obligations</i>	
04/08/63-07/31/83	FY82: \$68,000 TOTAL: \$2,195,942	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, K. A.	HQ-EE/Benson, R. F.	19-Phys Sci, NEC
	HQ-EE/Schmerling, E. R.	

NCC 2-163 University of California - Berkeley 1640
Viscometric and misting properties of polymer modified jet fuel

<i>Period</i>	<i>Obligations</i>	
11/01/81-09/30/82	FY82: \$15,000 TOTAL: \$15,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grens, E. A.	ARC/Altman, R. L.	43-Chem Engr
Williams, M. C.		

NGL 05-003-272 University of California - Berkeley 1647
Research on radiation physics

<i>Period</i>	<i>Obligations</i>	
03/01/68-02/28/83	FY82: \$40,000 TOTAL: \$1,236,380	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Townes, C. H.	HQ-EZ/Boggett, N. W.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NCC 2-164 University of California - Berkeley 1641
Anti-misting additives for jet fuels

<i>Period</i>	<i>Obligations</i>	
01/01/82-09/30/82	FY82: \$18,000 TOTAL: \$18,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grens, E. A.	ARC/Altman, R. L.	43-Chem Engr
Williams, M. C.	ARC/Parker, J. A.	

NGL 05-003-409 University of California - Berkeley 1648
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/26/71-01/31/83	FY82: \$170,000 TOTAL: \$1,464,192	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reynolds, J. H.	JSC/Dietrich, J. W.	13-Physics

NCC 2-179 University of California - Berkeley 1642
EXperiments on confined separated turbulent flow

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$45,496 TOTAL: \$45,496	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holt, M.	ARC/Marvin, J. G.	41-Aero Engr
	ARC/Horstman, C. C.	

NGL 05-003-497 University of California - Berkeley 1649
Research in space sciences

<i>Period</i>	<i>Obligations</i>	
04/05/72-03/31/83	FY82: \$105,000 TOTAL: \$2,465,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Price, P. B.	HQ-E/Gaskins, M. A.	99-Multi-Discip
	HQ-EP/Devlin, J.	

NCC 2-187 University of California - Berkeley 1643
Interaction of selected organic chemicals on membrane bound enzymes in the biological system

<i>Period</i>	<i>Obligations</i>	
03/01/82-09/30/82	FY82: \$12,598 TOTAL: \$12,598	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Timiras, P. S.	ARC/Golub, M. A.	56-Medical Sciences
	ARC/Parker, J. A.	

NGR 05-003-376 University of California - Berkeley 1650
High resolution studies of cosmic rays and solar particles

<i>Period</i>	<i>Obligations</i>	
04/16/71-11/30/82	FY82: \$100,000 TOTAL: \$1,078,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Price, P. B.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

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NGR 05-003-450 University of California - Berkeley 1651
Study of X-ray emission from galactic and extragalactic sources with emphasis on soft and ultra-soft wavelengths

<i>Period</i>	<i>Obligations</i>	
05/28/71-11/30/82	FY82: \$185,000	TOTAL: \$1,666,870
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowyer, C. S.	GSFC/Early, L. J.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NGR 05-003-451 University of California - Berkeley 1652
Research in aeronautics and air transportation

<i>Period</i>	<i>Obligations</i>	
03/15/71-01/31/82	FY82: \$7,000	TOTAL: \$703,735
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holt, M.	ARC/Lee, G.	41-Aero Engr

NGR 05-003-452 University of California - Berkeley 1653
Infrared spectra of planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
02/18/72-06/30/83	FY82: \$42,000	TOTAL: \$527,284
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Townes, C. H.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Britton, H. C.	

NGR 05-003-460 University of California - Berkeley 1654
The chemistry of living systems

<i>Period</i>	<i>Obligations</i>	
07/21/71-10/31/82	FY82: \$87,500	TOTAL: \$901,303
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jukes, J. H.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NGR 05-003-511 University of California - Berkeley 1655
Spectrographic observation of infrared lines

<i>Period</i>	<i>Obligations</i>	
03/01/73-10/31/82	FY82: \$73,059	TOTAL: \$488,774
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Townes, C. H.	ARC/Haughney, L. C.	11-Astronomy

NGR 05-003-513 University of California - Berkeley 1656
Heavy ion fragment experiments at the bevatron

<i>Period</i>	<i>Obligations</i>	
10/01/73-12/31/82	FY82: \$110,000	TOTAL: \$1,179,520
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heckman, H. H.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

NGR 05-003-578 University of California - Berkeley 1657
Theoretical X-ray and gamma-ray astronomy

<i>Period</i>	<i>Obligations</i>	
08/01/73-09/30/83	FY82: \$44,100	TOTAL: \$358,111
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silk, J. I.	HQ-EZ/Stencel, R. E.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NGT 05-003-800 University of California - Berkeley 1658
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$11,500	TOTAL: \$21,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shu, F. H.	HQ-LB/Carter, C. H.	21-Mathematics

NGT 05-003-801 University of California - Berkeley 1659
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$10,920	TOTAL: \$21,840
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Auslander, D. M.	HQ-LB/Carter, C. H.	44-Civil Engr

NGT 05-003-802 University of California - Berkeley 1660
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$10,800	TOTAL: \$10,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shu, F. H.	HQ-LB/Carter, C. H.	11-Astronomy

NSG 1637 University of California - Berkeley 1661
Integrated-optics cadmium/telluride electro optic modulator for the 10 UM region

<i>Period</i>	<i>Obligations</i>	
08/01/79-09/30/82	FY82:	TOTAL: \$103,320
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chiao, R. Y.	LARC/Sachse, G. W.	13-Physics

NSG 3227 University of California - Berkeley 1662
Study of the mechanism of flashback

<i>Period</i>	<i>Obligations</i>	
10/01/78-01/02/82	FY82:	TOTAL: \$121,049
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Oppenheim, A. K.	LERC/Marek, C. J.	41-Aero Engr

NSG 7127 University of California - Berkeley 1663
Map lunar surface remnant magnetic fields and to develop the theory of solar winds cavity

<i>Period</i>	<i>Obligations</i>	
03/25/75-03/31/82	FY82:	TOTAL: \$336,143
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, K. A.	HQ-EL/Quaide, W. L.	39-Env Sci, NEC

NSG 7152 University of California - Berkeley 1664
Studies of solar system objects with the new Hat Creek millimeter wave length radio interferometer

<i>Period</i>	<i>Obligations</i>	
07/01/75-10/31/82	FY82: \$32,409	TOTAL: \$237,946
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Welch, W. J.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NSG 7205 University of California - Berkeley 1665
Far infrared all-sky survey

<i>Period</i>	<i>Obligations</i>	
02/01/76-08/31/83	FY82: \$55,000	TOTAL: \$292,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Richards, P. L.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Bogges, N. W.	

NSG 7220 University of California - Berkeley 1666
Remote sensing to selected problems within the state of California

<i>Period</i>	<i>Obligations</i>	
05/01/76-04/30/83	FY82:	TOTAL: \$1,090,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Colwell, R. N.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 7262 University of California - Berkeley 1667
Primate hemodynamics and metabolism under conditions of weightlessness
Period *Obligations*
07/01/76-11/30/82 FY82: \$124,200 TOTAL: \$461,841
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pace, N. HQ-EB/Halstead, T. W. 51-Biological Sci

NSG 7336 University of California - Berkeley 1668
Gravity, body mass, and composition and metabolic rate
Period *Obligations*
12/01/76-11/30/82 FY82: \$90,000 TOTAL: \$393,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pace, N. HQ-EB/Halstead, T. W. 51-Biological Sci
Smith, A. H.

NSG 7401 University of California - Berkeley 1669
Theoretical study of equatorial F region irregularities
Period *Obligations*
11/01/77-10/31/80 FY82: TOTAL: \$104,874
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hudson, M. R. HQ-EZ/Schmerling, E. R.
19-Phys Sci, NEC

NSG 7522 University of California - Berkeley 1670
Social issues and implications of remote sensing applications: Paradigms of technology transfer
Period *Obligations*
01/01/79-08/31/82 FY82: TOTAL: \$408,125
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Colwell, R. N. HQ-ET/Tuyahov, A. J. 79-Soc Sci, NEC

NSG 7527 University of California - Berkeley 1671
A balloon-borne high resolution X and gamma-ray spectrometer
Period *Obligations*
02/01/79-01/31/83 FY82: \$50,000 TOTAL: \$127,837
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, R. P. HQ-EZ/Chipman, E. G. 13-Physics

NSG 7592 University of California - Berkeley 1672
Interaction of organic vapors and carbon spectrometer
Period *Obligations*
05/01/79-01/31/83 FY82: \$19,000 TOTAL: \$83,189
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, R. P. HQ-EZ/Kaluznienski, L. J. 11-Astronomy
HQ-EZ/Opp, A. G.

NAG 2-129 University of California - Davis 1673
Interaction of organic vapors and carbon containing synthetic fabrics
Period *Obligations*
10/01/81-03/31/83 FY82: TOTAL: \$20,499
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, J. M. ARC/Jagliostro, D. E. 39-Env Sci, NEC

NAG 5-217 University of California - Davis 1674
Remote sensing of the coastal ocean and a large lake basin
Period *Obligations*
01/15/82-01/14/83 FY82: \$62,170 TOTAL: \$62,170
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Powell, T. GSFC/Rao, D. B. 33-Oceanography

NAS 8-34730 University of California - Davis 1675
Evaluation of airborne Doppler lidar wind measurements
Period *Obligations*
05/17/82-05/16/83 FY82: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carroll, J. J. MSFC/Fitzgarrald, D. E. 31-Atmos Sci
MSFC/Kaufman, J. W.

NCA 2-180101 University of California - Davis 1676
Venusian saltation
Period *Obligations*
06/15/81-06/15/83 FY82: \$17,000 TOTAL: \$35,957
Prin. Invest. *NASA Tech. Officer* *CASE Category*
White, B. R. ARC/Pollack, J. B. 32-Geological Sci

NCA 2-180201 University of California - Davis 1677
Adaptive control and nonlinear systems
Period *Obligations*
06/21/82-06/20/83 FY82: \$18,887 TOTAL: \$18,887
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Borges, C. R. ARC/Meyer, G. 21-Mathematics

NCA 2-180903 University of California - Davis 1678
Wind-tunnel determination of particle to fluid speed for saltating flow
Period *Obligations*
06/15/79-06/15/81 FY82: TOTAL: \$37,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
White, B. R. ARC/Pollack, J. B. 46-Mech Engr

NCA 2-180905 University of California - Davis 1679
Development of a special purpose system for assessment of 24-hour biorhythm desynchronization and its effects on performance and psychological state
Period *Obligations*
07/01/79-03/31/82 FY82: TOTAL: \$38,796
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chapman, L. F. ARC/Winget, C. M. 51-Biological Sci

NCC 2-20 University of California - Davis 1680
Improvement in mechanical properties of low conductivity carbon fibers by impregnating with polymers and metals
Period *Obligations*
09/01/79-06/30/82 FY82: TOTAL: \$73,822
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Needles, H. L. ARC/Fish, R. H. 12-Chemistry

NCC 2-48 University of California - Davis 1681
An analysis of anticipated psychosocial requirements for future space flight
Period *Obligations*
11/01/79-04/30/81 FY82: TOTAL: \$5,965
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harrison, A. A. ARC/Conners, M. 61-Biol Aspects

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCC 2-99 University of California - Davis 1682
 Selection of crop varieties for efficient production using urea, ammonia, nitrite, and nitrate in the closed environmental life support system

<i>Period</i>	<i>Obligations</i>	
10/01/80-11/30/82	FY82: \$71,622	TOTAL: \$148,904
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huffaker, R. C.	ARC/Zill, L. P.	55-Agriculture Sci
Rains, D. W.		
Qualset, C. O.		

NAG 2-107 University of California - Irvine 1689
 Mitochondrial and contractile function in disuse atrophied skeletal muscle

<i>Period</i>	<i>Obligations</i>	
04/01/81-12/31/82	FY82: \$45,000	TOTAL: \$103,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baldwin, K. M.	ARC/Ellis, S.	51-Biological Sci

NCC 2-186 University of California - Davis 1683
 Reynolds-stress model for compressible flows

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$14,080	TOTAL: \$14,080
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kollmann, W.	ARC/Roberson, M. W.	19-Phys Sci, NEC
Vandrome, D.	ARC/Marvin, J. G.	

NAG 3-176 University of California - Irvine 1690
 Effect of liquid droplets on turbulence structure in a round gaseous jet

<i>Period</i>	<i>Obligations</i>	
06/01/81-03/31/83	FY82:	TOTAL: \$89,973
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elghobashi, S.	LERC/Jacina, R. R.	46-Mech Engr

NGT 05-004-800 University of California - Davis 1684
 Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$9,200	TOTAL: \$9,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Horowitz, J. M.	HQ-LB/Carter, C. H.	56-Medical Sciences

NAG 3-250 University of California - Irvine 1691
 Interactions of electromagnetic radiation with surface polaritons

<i>Period</i>	<i>Obligations</i>	
01/06/82-01/05/83	FY82: \$25,275	TOTAL: \$25,275
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mills, D. L.	LERC/Anderson, L. M.	13-Physics

NSG 2234 University of California - Davis 1685
 Thermoregulation in rats: Effects of hypergravity and norepinephrine

<i>Period</i>	<i>Obligations</i>	
07/01/77-02/28/83	FY82: \$30,011	TOTAL: \$119,611
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Horowitz, J. M.	HQ-EB/Halstead, T. W.	51-Biological Sci

NAG 3-322 University of California - Irvine 1692
 Light scattering studies of surface plasmons and other sew's

<i>Period</i>	<i>Obligations</i>	
09/15/82-09/14/83	FY82: \$65,000	TOTAL: \$65,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ushioda, S.	LERC/Anderson, L. M.	13-Physics

NSG 5092 University of California - Davis 1686
 Use of remote data in hydrologic engineering models

<i>Period</i>	<i>Obligations</i>	
02/01/76-09/30/80	FY82:	TOTAL: \$179,805
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Algazi, V. R.	GSFC/Rango, A.	39-Env Sci, NEC
	GSFC/Salomonson, V. V.	

NAGW 93 University of California - Irvine 1693
 Research in solar plasma theory

<i>Period</i>	<i>Obligations</i>	
06/01/80-08/14/83	FY82: \$86,164	TOTAL: \$242,164
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vanhoven, G.	HQ-EE/Butler, D.	13-Physics

NSG 7493 University of California - Davis 1687
 Avian embryonic development in hyperdynamic environments

<i>Period</i>	<i>Obligations</i>	
10/01/78-04/30/82	FY82: \$25,000	TOTAL: \$167,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Abbott, U. K.	HQ-EB/Halstead, T. W.	51-Biological Sci
Smith, A. H.		

NAGW 109 University of California - Irvine 1694
 A theoretical study of the X-ray emission from clusters of galaxies

<i>Period</i>	<i>Obligations</i>	
11/01/80-11/30/82	FY82:	TOTAL: \$11,046
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tucker, W. H.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

NCA 2-280001 University of California - Hastings Col. 1688
 A joint venture between the NASA-ARC and the Hastings College of law to encourage and support basic, exploratory and applied legal research of mutual benefit to the parties

<i>Period</i>	<i>Obligations</i>	
09/25/80-12/31/82	FY82: \$84,000	TOTAL: \$301,459
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henke, D. F.	ARC/Brekke, D. G.	99-Multi-Discip
Kerr, T. R.	ARC/Glazer, J. H.	

NAGW 212 University of California - Irvine 1695
 Models of energy transformation during the early evolution of life

<i>Period</i>	<i>Obligations</i>	
06/01/81-06/30/83	FY82: \$70,959	TOTAL: \$145,186
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lanyi, T. K.	HQ-EB/Devincenzi, D. L.	51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAS 2-10522 University of California - Irvine 1696
Life science experiment ARC 781-127, effect of zero-gravity on biochemical and metabolic properties of skeletal muscle

<i>Period</i>	<i>Obligations</i>	
01/15/80-09/30/81	FY82: \$34,138	TOTAL: \$37,015
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baldwin, K. M.	ARC/Ferandin, J. A.	51-Biological Sci
	ARC/Sebesta, P. D.	

NGR 05-041-012 University of California - Irvine 1697
Diagnosis of preclinical viral illness and prophylaxis against viral disease

<i>Period</i>	<i>Obligations</i>	
07/13/71-11/30/82	FY82: \$40,000	TOTAL: \$392,342
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tilles, J. G.	ARC/Mandel, A. D.	56-Medical Sciences

NSG 7208 University of California - Irvine 1698
Gas phase reactions of chlorine and fluorine compound of interest for stratospheric chemistry

<i>Period</i>	<i>Obligations</i>	
01/01/76-09/30/82	FY82:	TOTAL: \$587,028
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Molina, M. J.	HQ-EB/Watson, R. T.	31-Atmos Sci
	HQ-EB/Tilford, S. G.	

NSG 7375 University of California - Irvine 1699
Coronal plasma structures

<i>Period</i>	<i>Obligations</i>	
06/01/77-11/30/82	FY82: \$50,250	TOTAL: \$225,279
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Van Hoven, G.	HQ-EZ/Chipman, E.	13-Physics

NAG 1-267 University of California - Los Angeles 1700
Molecular beam epitaxy grown silicon-silicon germanium layered structures

<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$70,929	TOTAL: \$70,929
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Allen, F. G.	LARC/Fripp, A. L.	45-Elec Engr
	LARC/Crouch, R. K.	

NAG 1-270 University of California - Los Angeles 1701
A program to develop a shock-capturing finite difference algorithm

<i>Period</i>	<i>Obligations</i>	
05/15/82-02/28/83	FY82: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Osher, S. J.	LARC/Rudy, D. H.	41-Aero Engr
	LARC/Dwoyer, D. L.	

NAG 1-273 University of California - Los Angeles 1702
Numerical solution of the small disturbance equation of transonic flow

<i>Period</i>	<i>Obligations</i>	
06/30/82-06/30/83	FY82: \$53,158	TOTAL: \$53,158
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Osher, S. J.	LARC/Whitlow, W., Jr.	41-Aero Engr
Engquist, B.	LARC/Bland, S. R.	

NAG 2-41 University of California - Los Angeles 1703
Graduate student researchers program simulation

<i>Period</i>	<i>Obligations</i>	
05/01/80-09/30/82	FY82:	TOTAL: \$37,906
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karplus, W. J.	ARC/Raby, J. S.	22-Computer Science

NAG 2-116 University of California - Los Angeles 1704
A study of aeroelastic and structural dynamic effects in multi rotor systems with application to hybrid heavy lift vehicles

<i>Period</i>	<i>Obligations</i>	
05/01/81-05/31/83	FY82: \$56,000	TOTAL: \$107,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Friedmann, P. P.	ARC/Miura, H.	41-Aero Engr

NAG 3-69 University of California - Los Angeles 1705
Selection and testing of diaphragm materials for high temperature pressure transducers

<i>Period</i>	<i>Obligations</i>	
05/15/80-08/14/81	FY82:	TOTAL: \$60,280
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
MacKengie, J. D.	LERC/Barranger, J. P.	47-Materials Engr

NAG 3-132 University of California - Los Angeles 1706
Data flow computing approach in high speed digital simulation

<i>Period</i>	<i>Obligations</i>	
12/15/80-12/12/82	FY82: \$56,000	TOTAL: \$105,215
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ercegovac, M. D.	LERC/Milner, E. J.	22-Computer Science
Karplus, W. J.	LERC/Szuch, J. R.	

NAG 3-295 University of California - Los Angeles 1707
Ceramic-to-metal bonding for pressure transducers

<i>Period</i>	<i>Obligations</i>	
06/30/82-06/29/83	FY82: \$53,069	TOTAL: \$53,069
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McKenzie, J. D.	LERC/Barranger, J. P.	47-Materials Engr

NAG 5-112 University of California - Los Angeles 1708
Observations of selected astronomical emission lines

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/82	FY82:	TOTAL: \$3,574
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Plavec, M. J.	GSFC/Corrigan, J. P.	11-Astronomy

NAG 5-116 University of California - Los Angeles 1709
Observations of interstellar cloud densities and detection of interstellar neutral chlorine

<i>Period</i>	<i>Obligations</i>	
10/01/80-08/31/82	FY82:	TOTAL: \$3,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jura, M. A.	GSFC/Corrigan, J. P.	11-Astronomy

NAG 5-152 University of California - Los Angeles 1710
Thermal isotopy in the world's oceans

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$40,857	TOTAL: \$77,758
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaula, W. M.	GSFC/Welker, J.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 5-210 University of California - Los Angeles 1711
Reddening measurements for Seyfert 1 galaxies
Period Obligations
11/01/81-04/30/83 FY82: TOTAL: \$7,240
Prin. Invest. NASA Tech. Officer CASE Category
Grandi, S. A. GSFC/Kondo, Y. 11-Astronomy

NAGW 180 University of California - Los Angeles 1719
Turbulence in plasma with magnetic null points
Period Obligations
04/01/81-03/31/83 FY82: \$50,000 TOTAL: \$100,000
Prin. Invest. NASA Tech. Officer CASE Category
Stenzel, R. L. HQ-EE/Lynch, J. T. 19-Phys Sci, NEC
HQ-EE/Schmerling, E. R.

NAG 9-15 University of California - Los Angeles 1712
Eu neutron capture, regolith dynamics and lunar stratigraphy
Period Obligations
02/01/81-01/31/83 FY82: \$20,000 TOTAL: \$48,500
Prin. Invest. NASA Tech. Officer CASE Category
Depaolo, D. J. JSC/Dietrich, J. W. 99-Multi-Discip

NAGW 311 University of California - Los Angeles 1720
General availability of Mars infrared data
Period Obligations
04/01/82-03/31/83 FY82: \$29,952 TOTAL: \$29,952
Prin. Invest. NASA Tech. Officer CASE Category
Russell, C. T. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Boyce, J. M.

NAGW 74 University of California - Los Angeles 1713
A three dimensional model of bow shock location and motion
Period Obligations
07/01/80-06/30/82 FY82: TOTAL: \$32,317
Prin. Invest. NASA Tech. Officer CASE Category
Holzer, R. E. HQ-EZ/Mayr, H. G. 19-Phys Sci, NEC
HQ-EZ/Schmerling, E. R.

NAGW 333 University of California - Los Angeles 1721
Interpretation of Jovian plasma data
Period Obligations
04/01/82-03/31/83 FY82: \$27,867 TOTAL: \$27,867
Prin. Invest. NASA Tech. Officer CASE Category
Siscoe, G. L. HQ-EE/Lynch, J. T. 13-Physics
HQ-EE/Evans, N.

NAGW 78 University of California - Los Angeles 1714
Space plasma physics theory and simulation
Period Obligations
07/01/80-07/31/83 FY82: \$224,000 TOTAL: \$583,000
Prin. Invest. NASA Tech. Officer CASE Category
Abdulla, M. A. HQ-EE/Butler, D. M. 13-Physics

NAGW 347 University of California - Los Angeles 1722
Isotopic characteristics of prebiotic synthesis of organic matter
Period Obligations
07/01/82-06/30/83 FY82: \$47,309 TOTAL: \$47,309
Prin. Invest. NASA Tech. Officer CASE Category
Kerridge, J. F. HQ-EB/Devincenzi, D. L. 12-Chemistry

NAGW 80 University of California - Los Angeles 1715
Theoretical studies of extragalactic grains
Period Obligations
10/01/80-09/30/83 FY82: \$68,485 TOTAL: \$101,862
Prin. Invest. NASA Tech. Officer CASE Category
Jura, M. A. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Boggess, N. W.

NAS 1-16674 University of California - Los Angeles 1723
Stratospheric calibration of the quartz crystal microbalance (QCM)
Period Obligations
05/26/81-07/17/83 FY82: \$1,862 TOTAL: \$17,062
Prin. Invest. NASA Tech. Officer CASE Category
Friedlander, S. K. LARC/Woods, D. C. 31-Atmos Sci
Hering, S. V.

NAGW 87 University of California - Los Angeles 1716
Theoretical studies of the plasma environments of Jupiter and Saturn, their magnetosphere and their satellites
Period Obligations
07/01/80-09/30/83 FY82: \$39,345 TOTAL: \$177,829
Prin. Invest. NASA Tech. Officer CASE Category
Siscoe, G. L. HQ-EL/Brinton, H. C. 31-Atmos Sci

NAS 2-9128 University of California - Los Angeles 1724
Interdisciplinary scientist, Pioneer Venus program
Period Obligations
02/09/76-12/31/80 FY82: TOTAL: \$24,659
Prin. Invest. NASA Tech. Officer CASE Category
Kaula, W. H. ARC/Fimmel, R. O. 11-Astronomy
ARC/Dyer, J.

NAGW 104 University of California - Los Angeles 1717
High-pressure cosmochemistry applied to major planetary interiors: Experimental studies
Period Obligations
11/01/80-10/30/82 FY82: \$55,513 TOTAL: \$111,065
Prin. Invest. NASA Tech. Officer CASE Category
Nicol, M. F. HQ-EL/Quaide, W. L. 11-Astronomy
HQ-EL/French, B. M.

NAS 2-9131 University of California - Los Angeles 1725
Interdisciplinary scientist, Pioneer Venus program
Period Obligations
02/09/76-10/01/82 FY82: TOTAL: \$35,642
Prin. Invest. NASA Tech. Officer CASE Category
Schubert, G. ARC/Fimmel, R. O. 11-Astronomy
ARC/Dyer, J.

NAGW 162 University of California - Los Angeles 1718
Studies of the Jovian magnetopause and boundary layer
Period Obligations
04/01/81-03/31/83 FY82: \$32,000 TOTAL: \$64,000
Prin. Invest. NASA Tech. Officer CASE Category
Walker, R. J. HQ-EE/Lynch, J. T. 13-Physics
Kivelson, M. HQ-EE/Evans, N.

**NASA'S UNIVERSITY PROGRAM
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NAS 2-9491 University of California - Los Angeles 1726
Pioneer Venus data analysis of magnetic fields experiment

Period	Obligations
08/01/77-09/30/82	FY82: \$216,000 TOTAL: \$1,060,027
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Russell, C. T.	ARC/Fimmel, R. O. 31-Atmos Sci ARC/Dyer, J. W.

NAS 5-26871 University of California - Los Angeles 1733
Development of theoretical technology for origin of plasmas in the Earth's neighborhood (OPEN)

Period	Obligations
05/03/82-08/03/83	FY82: \$29,000 TOTAL: \$29,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Ashour-abdalla G. M.	GSFC/O'brien, J. J. 13-Physics

NAS 5-20064 University of California - Los Angeles 1727
Magnetic field investigation for ISEE mother/ daughter space - craft

Period	Obligations
06/05/74-12/30/81	FY82: TOTAL: \$1,027,402
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Russell, C. T.	GSFC/Kowalski, G. E. 13-Physics

NAS 5-26895 University of California - Los Angeles 1734
Investigation southern California tectonic deformation

Period	Obligations
04/02/82-04/02/84	FY82: \$45,000 TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Jackson, D. D. Davis, P. M.	GSFC/Mead, G. D. 32-Geological Sci

NAS 5-25039 University of California - Los Angeles 1728
Theory formulation and analysis support for the Dynamics Explorer (DE) project

Period	Obligations
08/08/78-02/28/83	FY82: \$89,000 TOTAL: \$142,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Coroniti, F. V.	GSFC/Bullock, G. 13-Physics

NAS 5-26957 University of California - Los Angeles 1735
Testing of hypotheses in crustal dynamics using very long baseline interferometry (VLBI) and satellite laser ranging (SLR) data from California

Period	Obligations
05/07/82-05/07/84	FY82: \$37,537 TOTAL: \$37,537
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Bird, G. P.	GSFC/Mead, G. D. 32-Geological Sci

NAS 5-25657 University of California - Los Angeles 1729
Space telescope/high resolution spectrograph interstellar medium studies

Period	Obligations
04/25/79-01/31/83	FY82: \$4,974 TOTAL: \$25,974
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Jura, M. A.	GSFC/Vitagliano, H. D. 11-Astronomy

NAS 5-26994 University of California - Los Angeles 1736
Data analysis studies for COBE

Period	Obligations
03/01/82-01/01/83	FY82: \$35,512 TOTAL: \$35,512
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Wright, E. L.	GSFC/Mather, J. C. 11-Astronomy GSFC/Donohoe, M. J.

NAS 5-25772 University of California - Los Angeles 1730
International Sun-Earth Explorers A and B data reduction and analysis for the magnetic field investigation

Period	Obligations
11/01/79-10/31/82	FY82: \$360,262 TOTAL: \$1,009,978
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Russell, C. T.	GSFC/Wales, R. O. 11-Astronomy

NAS 9-16047 University of California - Los Angeles 1737
Life science flight experiment pulmonary blood flow

Period	Obligations
01/17/80-01/31/82	FY82: TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Wiberg, D. M.	JSC/French, B. O. 59-Life Sci, NEC

NAS 5-26846 University of California - Los Angeles 1731
Magnetic field investigation for the polar plasma laboratory of the origin of plasmas in the Earth's neighborhood mission

Period	Obligations
06/11/82-09/11/83	FY82: \$30,000 TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Russell, C. T.	GSFC/O'brien, J. J. 13-Physics

NCA 2-390001 University of California - Los Angeles 1738
Characterization of esteropeptidases in rat tissues by gel electrophoresis

Period	Obligations
10/01/79-03/31/82	FY82: TOTAL: \$47,958
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Parlow, A.	ARC/Ellis, S. 51-Biological Sci

NAS 5-26852 University of California - Los Angeles 1732
A magnetic field investigation for the equatorial magnetospheric laboratory

Period	Obligations
06/11/82-09/11/83	FY82: \$20,000 TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
McPherron, R.	GSFC/O'brien, J. J. 13-Physics

NCA 2-390002 University of California - Los Angeles 1739
Numerical solution of transonic flow problems

Period	Obligations
10/01/79-07/01/82	FY82: TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i> <i>CASE Category</i>
Osher, S. Engquist, B.	ARC/Goorjian, P. 21-Mathematics ARC/Holst, T.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-390202 University of California - Los Angeles 1740
Computational fluid dynamics for problems involving shocks and boundaries

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Osher, S.	ARC/Warming, R. 29-Math/Cmputer,NEC	
Engquist, B.	ARC/Beam, R.	

NGL 05-007-190 University of California - Los Angeles 1747
Theoretical space plasma physics

<i>Period</i>	<i>Obligations</i>	
06/27/68-11/30/82	FY82: \$111,583	TOTAL: \$855,046
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HQ-EZ/Benson, R. F. 19-Phys Sci, NEC	
	HQ-EZ/Schmerling, E. R.	

NCA 2-390903 University of California - Los Angeles 1741
A study of dry-chemical fire-extinguishing mechanisms

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY82:	TOTAL: \$39,579
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Knuth, E. L.	ARC/Aitman, R. L.	12-Chemistry

NGL 05-007-367 University of California - Los Angeles 1748
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
06/30/72-01/31/83	FY82: \$74,000	TOTAL: \$800,570
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wasson, J. T.	JSC/Dietrich, J. W.	12-Chemistry

NCC 2-64 University of California - Los Angeles 1742
Vapor-liquid phase separator

<i>Period</i>	<i>Obligations</i>	
03/01/80-10/31/83	FY82:	TOTAL: \$47,236
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frederking, T. H.	ARC/Vorreiter, J. W.	46-Mech Engr
	ARC/Kittel, P.	

NGR 05-007-221 University of California - Los Angeles 1749
Nature and changes of organic matter in deep ocean cores

<i>Period</i>	<i>Obligations</i>	
08/08/69-01/31/83	FY82: \$80,894	TOTAL: \$822,190
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaplan, I. R.	HQ-EB/Devincenzi, D. L.	32-Geological Sci

NCC 2-104 University of California - Los Angeles 1743
Biological control system for extracellular fluid volume regulation

<i>Period</i>	<i>Obligations</i>	
11/01/80-10/31/82	FY82: \$90,000	TOTAL: \$180,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bricker, N. S.	ARC/Sandler, H.	59-Life Sci, NEC

NGR 05-007-289 University of California - Los Angeles 1750
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
12/29/70-01/31/83	FY82: \$65,000	TOTAL: \$840,709
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kerridge, J. F.	JSC/Dietrich, J. W.	13-Physics

NCC 2-156 University of California - Los Angeles 1744
High-temperature absorption spectra

<i>Period</i>	<i>Obligations</i>	
10/01/81-08/31/83	FY82:	TOTAL: \$37,583
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heller, E. J.	ARC/Arnold, J. O.	12-Chemistry
	ARC/Jaffe, R. L.	

NGR 05-007-317 University of California - Los Angeles 1751
Photogeologic interpretation of Mariner Mars 1969 imagery

<i>Period</i>	<i>Obligations</i>	
03/09/71-03/14/83	FY82: \$25,000	TOTAL: \$217,765
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schubert, G.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NGL 05-007-002 University of California - Los Angeles 1745
Theoretical evaluation of the internal structures and atmospheres of planets and the Moon

<i>Period</i>	<i>Obligations</i>	
01/01/62-01/31/83	FY82: \$50,000	TOTAL: \$1,039,666
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaula, W. M.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NGR 05-007-328 University of California - Los Angeles 1752
Numerical modeling of the global atmosphere and the world oceans

<i>Period</i>	<i>Obligations</i>	
08/15/71-11/15/82	FY82: \$29,000	TOTAL: \$549,649
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suarez, J.	GSFC/Halem, M.	31-Atmos Sci

NGL 05-007-004 University of California - Los Angeles 1746
Theoretical and experimental investigations of particles and fields in space, including construction of prototype instrumentation

<i>Period</i>	<i>Obligations</i>	
03/01/62-09/30/83	FY82: \$399,920	TOTAL: \$3,409,474
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coleman, P. J., Jr.	HQ-EE/Wiskerchen, M. J.	39-Env Sci, NEC
	HQ-EE/Schmerling, E. R.	

NGR 05-007-329 University of California - Los Angeles 1753
Elemental variations in genetically related meteorites

<i>Period</i>	<i>Obligations</i>	
04/27/71-03/31/83	FY82: \$50,000	TOTAL: \$686,096
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wasson, J. T.	HQ-EL/Taylor, L. A.	32-Geological Sci
	HQ-EL/Quaide, W. L.	

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NGR 05-007-351 University of California - Los Angeles 1754
Correlative studies of Apollo 15 and 16 satellite magnetometer data with the Explorer 35 and lunar surface magnetometer data

<i>Period</i>	<i>Obligations</i>	
05/25/72-04/30/82	FY82: \$8,000	TOTAL: \$814,633
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coleman, P. J., Jr.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NGR 05-007-407 University of California - Los Angeles 1755
Paleobiologic studies of the antiquity and Precambrian evolution of life

<i>Period</i>	<i>Obligations</i>	
04/10/73-12/31/82	FY82:	TOTAL: \$323,626
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schopf, J. W.	HQ-EB/Devincenzi, D. L.	32-Geological Sci

NGR 05-007-418 University of California - Los Angeles 1756
Utricular influences on visual motor control research

<i>Period</i>	<i>Obligations</i>	
09/01/73-02/28/82	FY82:	TOTAL: \$160,935
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Markham, C. H.	ARC/Daunton, N. G.	54-Env Biology

NSG 1490 University of California - Los Angeles 1757
Fundamental studies of methods for structural synthesis

<i>Period</i>	<i>Obligations</i>	
02/01/80-09/30/84	FY82: \$96,000	TOTAL: \$457,699
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schmit, L. A., Jr.	LARC/Sobieski, J.	49-Engr, NEC

NSG 1578 University of California - Los Angeles 1758
Response studies of rotors and rotor blades with applications to aeroelastic tailoring

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/82	FY82: \$35,000	TOTAL: \$231,177
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Friedmann, P.	LARC/Young, W. H.	41-Aero Engr

NSG 2290 University of California - Los Angeles 1759
Research program in jet/surface interactions

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/83	FY82:	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meecham, W. C.	ARC/Soderman, P.	41-Aero Engr

NSG 3236 University of California - Los Angeles 1760
Investigations of the interaction between a grazing flow over a Helmholtz resonator orifice and the acoustically induced velocity in it

<i>Period</i>	<i>Obligations</i>	
11/14/78-02/14/83	FY82: \$28,180	TOTAL: \$121,532
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Charwat, A. F.	LERC/Rice, E. J.	13-Physics
Monkewitz, P. A.	LERC/Baumeister, K. J.	
Walker, B. E.		

NSG 4015 University of California - Los Angeles 1761
Modelling, identification and control with applications to flight vehicles

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/84	FY82: \$56,224	TOTAL: \$293,949
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Balakrishnan, A. V.	DFRF/Iliff, K. W.	41-Aero Engr

NSG 4024 University of California - Los Angeles 1762
Models for numerical simulation of gravity waves and clear air turbulence formation

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/83	FY82: \$52,649	TOTAL: \$205,820
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wurtele, M. G.	DFRF/Ehernberger, L. J.	31-Atmos Sci
Sharman, R. D.		

NSG 4027 University of California - Los Angeles 1763
System study for the application of microcomputers to research flight test techniques

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$60,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smyth, R. K.	DFRF/Abbott, L. W.	45-Elec Engr
	DFRF/Petersen, K. L.	

NSG 5263 University of California - Los Angeles 1764
Earth dynamics analyses

<i>Period</i>	<i>Obligations</i>	
03/15/78-04/13/83	FY82: \$46,175	TOTAL: \$294,897
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaula, W. M.	GSFC/Welker, J.	32-Geological Sci
Ernst, W. G.		

NSG 5272 University of California - Los Angeles 1765
Problems of mass loss and mass transfer in close binary systems

<i>Period</i>	<i>Obligations</i>	
05/01/78-04/30/83	FY82: \$18,100	TOTAL: \$78,899
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Plavec, M. J.	GSFC/Kondo, Y.	11-Astronomy

NSG 5351 University of California - Los Angeles 1766
Investigation of the wayside boundary region plasma and magnetic field

<i>Period</i>	<i>Obligations</i>	
05/01/79-03/31/83	FY82: \$25,000	TOTAL: \$85,523
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Crooker, N.	GSFC/Wales, R.	32-Geological Sci

NSG 5358 University of California - Los Angeles 1767
Ultraviolet observations of high excitation planetary nebulae

<i>Period</i>	<i>Obligations</i>	
05/09/79-12/08/82	FY82: \$4,600	TOTAL: \$30,034
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Aller, L. H.	GSFC/Kondo, Y.	11-Astronomy

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NSG 5377	University of California - Los Angeles	1768
Observations of interstellar zinc		
<i>Period</i>	<i>Obligations</i>	
06/01/79-08/31/81	FY82: TOTAL: \$6,100	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jura, M.	GSFC/Bogges, A.	11-Astronomy
NSG 7164	University of California - Los Angeles	1769
Dynamical studies of the Venus atmosphere		
<i>Period</i>	<i>Obligations</i>	
09/01/75-09/30/83	FY82: \$29,490 TOTAL: \$221,523	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schubert, G.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	
NSG 7239	University of California - Los Angeles	1770
Possible correlations between the interplanetary magnetic field and zodiacal light polarization vectors		
<i>Period</i>	<i>Obligations</i>	
06/01/76-06/30/81	FY82: TOTAL: \$15,135	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Allen, L. H.	HQ-EL/Murphy, R. E.	31-Atmos Sci
NSG 7295	University of California - Los Angeles	1771
Analysis of data from the helium vector magnetometers on the Pioneers 10 and 11 spacecraft		
<i>Period</i>	<i>Obligations</i>	
10/01/76-09/30/82	FY82: \$107,000 TOTAL: \$606,542	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coleman, P. J.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EZ/Schmerling, E. R.	
NSG 7315	University of California - Los Angeles	1772
Theoretical studies of Moon plasma interactions		
<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/83	FY82: \$30,000 TOTAL: \$201,063	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schubert, G.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	
NSG 7341	University of California - Los Angeles	1773
Physics of astrophysical plasmas		
<i>Period</i>	<i>Obligations</i>	
04/01/77-12/31/82	FY82: \$42,000 TOTAL: \$205,437	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kennel, C. F.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	
NSG 7407	University of California - Los Angeles	1774
A three-dimensional observational study of the solar five-minute oscillation		
<i>Period</i>	<i>Obligations</i>	
10/01/77-09/30/81	FY82: TOTAL: \$106,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ulrich, R. K.	HQ-EZ/Chipman, E. C.	13-Physics
NSG 7484	University of California - Los Angeles	1775
Planetary dynamics		
<i>Period</i>	<i>Obligations</i>	
08/01/78-01/31/83	FY82: TOTAL: \$55,332	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Busse, F. W.	HQ-EL/Quaide, W. L.	32-Geological Sci
NSG 7489	University of California - Los Angeles	1776
Paleobiologic studies of Archean evolution		
<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/81	FY82: TOTAL: \$175,476	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schopf, J. W.	HQ-EZ/Schmerling, E. R.	32-Geological Sci
NSG 7583	University of California - Los Angeles	1777
Thermal behavior of Martian regional and local features		
<i>Period</i>	<i>Obligations</i>	
03/01/79-06/30/81	FY82: TOTAL: \$167,602	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shubert, G.	HQ-EL/Quaide, W. L.	32-Geological Sci
NAGW 309	University of California - Riverside	1778
Thermoregulation in primates in hyper-acceleration fields		
<i>Period</i>	<i>Obligations</i>	
03/15/82-03/14/83	FY82: \$42,556 TOTAL: \$42,556	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fuller, C. A.	HQ-EB/Halstead, T. W.	51-Biological Sci
NAS 2-10538	University of California - Riverside	1779
Thermoregulation in primates in the space environment		
<i>Period</i>	<i>Obligations</i>	
01/17/80-03/31/82	FY82: \$255,596 TOTAL: \$387,505	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fuller, C. A.	ARC/Ferandin, J.	51-Biological Sci
	ARC/Connolly, J.	
NGR 05-008-022	University of California - Riverside	1780
Measurement of neutrons from Sun		
<i>Period</i>	<i>Obligations</i>	
05/18/69-11/30/82	FY82: \$203,381 TOTAL: \$938,050	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
White, R. S.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
Zych, A. D.	HQ-EZ/Opp, A. G.	
NAG 1-77	University of California - San Diego	1781
Scientific and applications investigations of stratospheric trace gases		
<i>Period</i>	<i>Obligations</i>	
06/04/80-01/15/82	FY82: TOTAL: \$65,034	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cicerone, R. J.	LARC/Sullivan, E. M.	31-Atmos Sci
Crutzen, P. J.	LARC/Russell, J. M.	
NAG 2-153	University of California - San Diego	1782
Pioneer 10 and 11 data analysis		
<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$75,000 TOTAL: \$75,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fillius, W.	ARC/Fimmel, R. O.	18-Phys Sci, NEC

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NAG 3-320 University of California - San Diego 1783
Spacecraft charging on ISEE

<i>Period</i>	<i>Obligations</i>	
09/15/82-09/14/83	FY82: \$28,882	TOTAL: \$28,882
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whipple, E. C.	LERC/Purvis, C. K.	13-Physics

NAG 5-610 University of California - San Diego 1791
USCD participation in active plasma release experiments

<i>Period</i>	<i>Obligations</i>	
06/30/82-07/14/83	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Torbert, R. B.	GSFC/Early, L. J.	13-Physics
	GSFC/Pless, R. H.	

NAG 5-11 University of California - San Diego 1784
Research relative to improvements in benchmark stability for precision tilt measurements of crustal dynamics

<i>Period</i>	<i>Obligations</i>	
02/15/80-03/14/83	FY82: \$50,000	TOTAL: \$154,094
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Berger, J.	GSFC/Welker, J.	32-Geological Sci
Wyatt, F.		

NAG 8-315 University of California - San Diego 1792
X-ray observations of radio bursting quasars NRA0140 and NRA0530 on the High Energy Astronomical Observatory-B guest investigator program

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/82	FY82:	TOTAL: \$8,922
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Marscher, A. P.	MSFC/Jones, J. B.	11-Astronomy

NAG 5-63 University of California - San Diego 1785
A study of extragalactic sources

<i>Period</i>	<i>Obligations</i>	
06/01/80-04/30/83	FY82: \$3,325	TOTAL: \$17,133
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Worrall, D. M.	GSFC/Boggess, A.	11-Astronomy

NAG 8-340 University of California - San Diego 1793
X-ray observations of optical absorption-line quasi stellar objects on the High Energy Astronomical Observatory-B guest investigator program

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/82	FY82:	TOTAL: \$6,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burbidge, E. M.	MSFC/Jones, J. B.	11-Astronomy

NAG 5-105 University of California - San Diego 1786
The nonlinear response in a baroclinic model to stationary forcings

<i>Period</i>	<i>Obligations</i>	
09/15/80-03/31/83	FY82: \$65,000	TOTAL: \$126,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roads, J. O.	GSFC/Shukla, J.	31-Atmos Sci

NAG 8-377 University of California - San Diego 1794
IPC observations of 31 selected quasars for determination of their average 0.15 5000 keV spectrum 1

<i>Period</i>	<i>Obligations</i>	
09/22/80-12/31/82	FY82:	TOTAL: \$6,542
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Worrall, D. M.	MSFC/Stone, J. F.	11-Astronomy

NAG 5-194 University of California - San Diego 1787
Ultraviolet spectrophotometry of quasi-stellar objects and Seyfert galaxies

<i>Period</i>	<i>Obligations</i>	
07/01/81-10/31/82	FY82: \$5,000	TOTAL: \$10,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, H. E.	GSFC/Boggess, A.	11-Astronomy

NAGW 12 University of California - San Diego 1795
Theoretical work in high energy astrophysics and extragalactic astronomy

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/82	FY82:	TOTAL: \$33,347
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Felten, J. E.	HQ-EZ/Kaluziński, L. J.	11-Astronomy

NAG 5-195 University of California - San Diego 1788
Ultraviolet spectrophotometry of selected quasars and galaxies

<i>Period</i>	<i>Obligations</i>	
07/01/81-10/31/83	FY82: \$3,900	TOTAL: \$8,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Puetter, R. C.	GSFC/Kondo, Y.	11-Astronomy
Rudy, R. J.		

NAGW 20 University of California - San Diego 1796
Mechanism of synthesis of amino, hydroly and dicarboxylic acids in carbonaceous chondrites

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/82	FY82: \$49,415	TOTAL: \$133,736
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, S. L.	HQ-EB/Devincenzi, D. L.	32-Geological Sci

NAG 5-229 University of California - San Diego 1789
Study of wave emissions stimulated by electron guns

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tobert, R. B.	GSFC/Wales, R. O.	11-Astronomy

NAGW 30 University of California - San Diego 1797
Radioactive transfer effects in quasi-stellar emission line clouds

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/82	FY82: \$48,649	TOTAL: \$103,508
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Canfield, R. C.	HQ-EZ/Weiler, E. J.	11-Astronomy
Puetter, R. C.	HQ-EZ/Boggess, N. W.	

NAG 5-236 University of California - San Diego 1790
Effects of global tropical weather satellite data on planetary waves

<i>Period</i>	<i>Obligations</i>	
05/15/82-05/14/83	FY82: \$90,000	TOTAL: \$90,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Somerville, R. C.	GSFC/Baker, W.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
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NAGW 45 University of California - San Diego 1798
Measurements of key biogeochemical gases and theoretical studies in atmospheric chemistry

<i>Period</i>	<i>Obligations</i>	
02/01/80-04/30/81	FY82:	TOTAL: \$85,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cicerow, R. J.	HQ-EB/Watson, R. T.	31-Atmos Sci

NAGW 73 University of California - San Diego 1799
Planetary biology and microbial ecology

<i>Period</i>	<i>Obligations</i>	
04/05/80-07/01/82	FY82:	TOTAL: \$67,724
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nealson, K. H.	HQ-EB/Devincenzi, D. L.	51-Biological Sci
Cowans, J.		

NAGW 103 University of California - San Diego 1800
The abundance of the elements

<i>Period</i>	<i>Obligations</i>	
11/01/80-10/31/82	FY82: \$8,000	TOTAL: \$26,458
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suess, H.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAGW 181 University of California - San Diego 1801
Research expedition to study prochloran in Palau

<i>Period</i>	<i>Obligations</i>	
03/15/81-09/14/83	FY82:	TOTAL: \$32,608
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewin, R. A.	HQ-EB/Devincenzi, D. L.	51-Biological Sci

NAGW 210 University of California - San Diego 1802
Condensation process in the early solar system

<i>Period</i>	<i>Obligations</i>	
05/15/81-05/14/83	FY82: \$25,000	TOTAL: \$59,139
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnold, J. R.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAGW 225 University of California - San Diego 1803
Impact ionization study

<i>Period</i>	<i>Obligations</i>	
08/01/81-06/30/82	FY82:	TOTAL: \$9,632
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whipple, E. C.	HQ-EL/Murphy, R. E.	31-Atmos Sci

NAGW 338 University of California - San Diego 1804
Trapped particle absorption by the ring of Jupiter

<i>Period</i>	<i>Obligations</i>	
04/15/82-04/14/83	FY82: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fillius, W.	HQ-EE/Lynch, J. T.	13-Physics
	HQ-EL/Evans, N.	

NAGW 342 University of California - San Diego 1805
Thiol biochemistry of prokaryotes

<i>Period</i>	<i>Obligations</i>	
06/08/82-06/07/83	FY82: \$95,000	TOTAL: \$95,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fahey, R. C.	HQ-EB/Devincenzi, D. L.	51-Biological Sci

NAS 2-6552 University of California - San Diego 1806
Data analysis of Jovian trapped radiation by Pioneer F/G

<i>Period</i>	<i>Obligations</i>	
01/25/72-12/31/81	FY82:	TOTAL: \$1,194,027
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fillius, W.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J. W.	

NAS 5-24463 University of California - San Diego 1807
Faint object spectrograph for space telescope

<i>Period</i>	<i>Obligations</i>	
09/15/78-10/31/84	FY82: \$4,897,548	TOTAL: \$25,530,033
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harms, R. A.	GSFC/White, R. A.	11-Astronomy
	GSFC/Sours, W. P.	

NAS 5-25054 University of California - San Diego 1808
Development of digital image tubes

<i>Period</i>	<i>Obligations</i>	
05/01/78-11/30/82	FY82: \$35,300	TOTAL: \$517,129
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beaver, E. A.	GSFC/Shannon, J. L.	11-Astronomy

NAS 5-25448 University of California - San Diego 1809
Gamma-ray spectroscopy experiment for the gamma-ray observatory final definition phase

<i>Period</i>	<i>Obligations</i>	
01/16/79-05/31/81	FY82:	TOTAL: \$976,569
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Patterson, L. E.	GSFC/Davis, M. A.	11-Astronomy

NAS 5-25450 University of California - San Diego 1810
Remote sensing surface truth cruise of the horizon

<i>Period</i>	<i>Obligations</i>	
01/30/79-09/30/80	FY82:	TOTAL: \$125,315
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Austin, R. W.	GSFC/Nelsen, D.	33-Oceanography

NAS 5-26249 University of California - San Diego 1811
Coastal zone scanner validation studies

<i>Period</i>	<i>Obligations</i>	
07/23/80-01/31/83	FY82: \$136,500	TOTAL: \$221,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Austin, R. W.	GSFC/Szajna, E. F.	33-Oceanography

NAS 5-26668 University of California - San Diego 1812
The calculation of the rate of neutron production in solar flares by accelerated particles

<i>Period</i>	<i>Obligations</i>	
09/01/81-10/01/82	FY82:	TOTAL: \$20,208
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lingenfelter, R. E.	GSFC/Ramaty, R.	13-Physics

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NAS 5-26854	University of California - San Diego	1813	Electric field investigation by electron drift studies (EFIELDS)	
<i>Period</i>	<i>Obligations</i>			
06/15/82-09/15/83	FY82: \$50,000	TOTAL: \$50,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
McIlwain, C. E.	GSFC/O'Brien, J. J.	13-Physics		
NAS 5-27228	University of California - San Diego	1814	A statistical understanding of tectonic motions analysis of crustal dynamics observations	
<i>Period</i>	<i>Obligations</i>			
06/29/82-07/01/84	FY82: \$51,000	TOTAL: \$51,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Agnew, D. C.	GSFC/Mead, G. D.	32-Geological Sci		
Berger, J.				
Wyatt, F.				
NAS 5-27234	University of California - San Diego	1815	Plate motion's and deformation from geologic and geodetic data	
<i>Period</i>	<i>Obligations</i>			
05/27/82-05/27/84	FY82: \$42,000	TOTAL: \$42,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Jordan, T. H.	GSFC/Mead, G. D.	32-Geological Sci		
NAS 5-27248	University of California - San Diego	1816	Gamma ray observatory instrument design review support	
<i>Period</i>	<i>Obligations</i>			
06/16/82-09/30/84	FY82: \$16,200	TOTAL: \$16,200		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Whipple, E. C.	GSFC/Davis, M. A.	49-Engr, NEC		
NAS 5-27315	University of California - San Diego	1817	Conduct and design a feasibility study for a microprocessor in the hydro-experiment	
<i>Period</i>	<i>Obligations</i>			
07/06/82-07/05/83	FY82: \$53,094	TOTAL: \$53,094		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Fillins, R. W.	GSFC/Scudder, J. D.	19-Phys Sci, NEC		
	GSFC/Ogilvie, K. W.			
NAS 8-27974	University of California - San Diego	1818	Design and development of AGR-4 MeV range gamma ray telescope experiment under the HEAO program	
<i>Period</i>	<i>Obligations</i>			
06/22/72-09/30/82	FY82: \$173,926	TOTAL: \$8,723,367		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Peterson, L. E.	MSFC/Stone, J. F.	11-Astronomy		
	MSFC/Lusk, J. L.			
NAS 8-32984	University of California - San Diego	1819	Analysis of soft X-ray data	
<i>Period</i>	<i>Obligations</i>			
02/01/79-02/28/82	FY82:	TOTAL: \$41,184		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Svestka, Z.	MSFC/Deloach, A. C.	13-Physics		
	MSFC/Snoddy, W. C.			
NAS 8-33795	University of California - San Diego	1820	Solar terrestrial observatory science study group	
<i>Period</i>	<i>Obligations</i>			
06/23/80-06/23/82	FY82:	TOTAL: \$35,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Canfield, R. C.	MSFC/Chappell, C. R.	31-Atmos Sci		
	MSFC/Fields, S. A.			
NAS 8-35037	University of California - San Diego	1821	Study of utilization of external tanks of the space transportation system in space	
<i>Period</i>	<i>Obligations</i>			
08/16/82-08/15/83	FY82: \$40,000	TOTAL: \$40,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Arnold, J. R.	MSFC/Wales, W. W.	32-Geological Sci		
NAS 9-16033	University of California - San Diego	1822	Effect of weightlessness on the fluid physiology of the inner ear	
<i>Period</i>	<i>Obligations</i>			
01/17/80-01/31/82	FY82:	TOTAL: \$16,448		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Ryan, A. F.	JSC/Lintott, J.	59-Life Sci, NEC		
NAS 9-16037	University of California - San Diego	1823	Pulmonary functions during weightlessness	
<i>Period</i>	<i>Obligations</i>			
01/17/80-11/30/82	FY82: \$164,425	TOTAL: \$220,226		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
West, J. B.	JSC/McAllum, W. E.	59-Life Sci, NEC		
NAS 9-16039	University of California - San Diego	1824	Tissue shifts and muscle function in hormone during weightlessness	
<i>Period</i>	<i>Obligations</i>			
01/17/80-01/31/82	FY82:	TOTAL: \$29,473		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Morgens, A. R.	JSC/White, T.	59-Life Sci, NEC		
NAS 9-16312	University of California - San Diego	1825	Micro assay for catecholomine concentration in body fluids	
<i>Period</i>	<i>Obligations</i>			
02/01/81-02/01/83	FY82: \$7,300	TOTAL: \$18,600		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Ziegler, M. G.	JSC/Leach, C. S.	59-Life Sci, NEC		
NASW 3643	University of California - San Diego	1826	Research into selected key factors of space industrialization and lunar utilization	
<i>Period</i>	<i>Obligations</i>			
09/27/82-09/30/84	FY82: \$90,000	TOTAL: \$90,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Arnold, J. R.	HQ-EN/Gordon, P. G.	49-Engr, NEC		
	HQ-EN/Testardi, L. R.			
NCA 2-858001	University of California - San Diego	1827	High deformation-rate extensional rheology of polymeric anti-misting additives	
<i>Period</i>	<i>Obligations</i>			
02/01/80-09/30/81	FY82:	TOTAL: \$10,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Middleman, S.	ARC/Altman, R. L.	46-Mech Engr		

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NGL 05-005-003 University of California - San Diego 1828
Laboratory and balloon experiments in X-ray and gamma ray astronomy
Period *Obligations*
09/15/62-12/31/82 FY82: \$368,459 TOTAL: \$3,269,145
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, L. E. HQ-EZ/Kaluziński, L. J. 13-Physics
Pelling, R. M. HQ-EZ/Opp, A. G.

NGL 05-005-004 University of California - San Diego 1829
Theoretical studies in astrophysics
Period *Obligations*
02/04/63-04/30/83 FY82: \$36,226 TOTAL: \$922,673
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gould, R. J. HQ-EZ/Kaluziński, L. J. 11-Astronomy
HQ-EZ/Opp, A. G.

NGL 05-005-007 University of California - San Diego 1830
Study of geomagnetically trapped particles by Explorer and Injun satellite data, refining particle detectors, detector systems and telemetered-data processing equipment
Period *Obligations*
02/20/64-10/31/82 FY82: \$200,000 TOTAL: \$2,991,364
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McIlwain, C. E. HQ-EZ/Wiskerchen, M. J. 13-Physics
HQ-EZ/Schmerling, E. R.

NGL 05-009-002 University of California - San Diego 1831
Studies of the composition and structure of meteorites
Period *Obligations*
10/02/63-06/30/82 FY82: TOTAL: \$841,301
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arrhenius, G. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/French, B. M.

NGL 05-009-148 University of California - San Diego 1832
Lunar sample analysis
Period *Obligations*
02/11/71-01/31/83 FY82: \$125,000 TOTAL: \$1,277,984
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arnold, J. R. JSC/Dietrich, J. W. 12-Chemistry

NGL 05-009-150 University of California - San Diego 1833
Lunar sample analysis
Period *Obligations*
02/01/71-01/31/83 FY82: \$200,000 TOTAL: \$2,067,622
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martí, K. JSC/Dietrich, J. W. 12-Chemistry

NGR 05-005-005 University of California - San Diego 1834
Study of lunar gamma ray emission
Period *Obligations*
09/10/63-09/30/83 FY82: \$36,000 TOTAL: \$976,836
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arnold, J. R. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NGR 05-005-055 University of California - San Diego 1835
Infrared astronomic observation from high altitude airplane/telescope program
Period *Obligations*
06/05/73-10/31/82 FY82: \$75,694 TOTAL: \$574,603
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jones, B. ARC/Haughney, L. C. 11-Astronomy

NGR 05-009-110 University of California - San Diego 1836
The structure and evolution of the asteroid belt
Period *Obligations*
01/23/70-12/31/82 FY82: \$55,000 TOTAL: \$658,690
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mendis, D. A. HQ-EL/Brinton, H. C. 11-Astronomy
HQ-EL/Brunk, W. E.

NGR 05-009-188 University of California - San Diego 1837
Construction of a 200 channel photometer for use in low light level astronomy
Period *Obligations*
05/17/72-12/31/82 FY82: TOTAL: \$618,743
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McIlwain, C. E. HQ-EZ/Weiler, E. J. 11-Astronomy

NSG 1641 University of California - San Diego 1838
Ship and satellite bio-optical research in the California bight
Period *Obligations*
08/01/79-01/31/82 FY82: \$6,813 TOTAL: \$308,532
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, R. C. LARC/Esaias, W. E. 33-Oceanography

NSG 3219 University of California - San Diego 1839
Research on variable density turbulence
Period *Obligations*
10/01/78-09/29/81 FY82: TOTAL: \$131,154
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Libby, P. A. LERC/Marek, C. J. 41-Aero Engr
Larue, J. C.

NSG 5321 University of California - San Diego 1840
Coronal non-thermal processes
Period *Obligations*
01/15/79-09/30/81 FY82: TOTAL: \$47,887
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hudson, H. S. GSFC/Wende, C. 31-Atmos Sci

NSG 5322 University of California - San Diego 1841
Solar analysis of the solar-constant monitoring package
Period *Obligations*
01/15/79-03/31/82 FY82: TOTAL: \$94,811
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hudson, H. S. GSFC/Wende, C. 31-Atmos Sci

NSG 5331 University of California - San Diego 1842
Measurement of vertical crustal motion with superconducting gravimeters
Period *Obligations*
02/01/79-01/31/82 FY82: TOTAL: \$223,133
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodkind, J. M. GSFC/Welker, J. 19-Phys Sci, NEC
Warburton, R. J. GSFC/Kahn, W. D.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 7027 **University of California - San Diego** **1843**
Orbital geochemical data analysis and synthesis

<i>Period</i>	<i>Obligations</i>	
03/01/74-01/31/83	FY82: \$20,000	TOTAL: \$469,568
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnold, J. R.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NSG 7541 **University of California - San Diego** **1850**
Theoretical studies in gamma ray line astronomy

<i>Period</i>	<i>Obligations</i>	
02/01/80-03/31/83	FY82: \$53,499	TOTAL: \$168,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lingenfelter, R. E.	HQ-EZ/Kaluziński, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

NSG 7102 **University of California - San Diego** **1844**
Research on processes controlling the formation and evolution of the small bodies in the solar system

<i>Period</i>	<i>Obligations</i>	
09/01/74-10/31/82	FY82: \$59,000	TOTAL: \$396,214
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alfven, H.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/French, B. M.	

NSG 7623 **University of California - San Diego** **1851**
The new plasmas and its applications to planetary magnetospheres and the heliosphere

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/83	FY82: \$80,000	TOTAL: \$200,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alfven, H.	HQ-EE/Lynch, J. T.	19-Phys Sci, NEC
	HQ-EE/Schmerling, E. R.	

NSG 7121 **University of California - San Diego** **1845**
Carbonaceous chondrites early irradiation and 244/PU fission records

<i>Period</i>	<i>Obligations</i>	
02/27/75-02/28/83	FY82: \$64,500	TOTAL: \$398,421
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
MacDougall, J. D.	HQ-EL/Taylor, L. A.	32-Geological Sci
	HQ-EL/Quaide, W. L.	

NSG 9075 **University of California - San Diego** **1852**
In-flight evaluation of weightlessness and gravity on cardiopulmonary function in man

<i>Period</i>	<i>Obligations</i>	
12/01/78-05/31/81	FY82:	TOTAL: \$74,558
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
West, J. B.	JSC/Horrigan, D. J.	56-Medical Sciences

NSG 7161 **University of California - San Diego** **1846**
Analysis and interpretation of solar X-ray data from OSO-7

<i>Period</i>	<i>Obligations</i>	
07/01/75-09/30/82	FY82: \$78,000	TOTAL: \$434,453
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peterson, L. E.	HQ-EZ/Chipman, E.	13-Physics

NAGW 236 **University of California - San Francisco** **1853**
Alterations in gut transport of minerals and in binding protein during simulated weightlessness

<i>Period</i>	<i>Obligations</i>	
08/01/81-11/30/83	FY82: \$63,000	TOTAL: \$123,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bikle, D. D.	HQ-EB/Halstead, T. W.	51-Biological Sci

NSG 7294 **University of California - San Diego** **1847**
Preparation of a set of sky maps in hard X-rays from OSO-1 data

<i>Period</i>	<i>Obligations</i>	
10/01/76-02/28/82	FY82:	TOTAL: \$84,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rothschild, R. E.	HQ-EZ/Kaluziński, L. J.	11-Astronomy

NAGW 307 **University of California - San Francisco** **1854**
Exobiology: Extension of work on organic geochemistry chemical evolution and evolution of living systems

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/83	FY82: \$125,000	TOTAL: \$125,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Calvin, M.	HQ-EB/Geib, D. S.	32-Geological Sci
	Burlingame, A. L.	

NSG 7377 **University of California - San Diego** **1848**
Ultraviolet spectra of quasars related extra galactic sources, and X-ray sources

<i>Period</i>	<i>Obligations</i>	
09/15/77-10/14/83	FY82: \$35,628	TOTAL: \$195,388
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burbidge, E. M.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Boggess, N. W.	

NAGW 349 **University of California - San Francisco** **1855**
Changes in bone structure and metabolism during simulated weightlessness endocrine and dietary factors

<i>Period</i>	<i>Obligations</i>	
07/01/82-05/31/83	FY82: \$49,328	TOTAL: \$49,328
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Halloran, B.	HQ-EB/Halstead, T. W.	51-Biological Sci

NSG 7406 **University of California - San Diego** **1849**
Hydrodynamic models of flares

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/83	FY82: \$99,837	TOTAL: \$377,593
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Canfield, R. C.	HQ-EZ/Chipman, E.	13-Physics

NAS 2-10164 **University of California - San Francisco** **1856**
Quantitative analysis of selected bone parameters

<i>Period</i>	<i>Obligations</i>	
02/12/79-09/15/80	FY82:	TOTAL: \$51,838
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnaud, C.	ARC/Souza, K. A.	51-Biological Sci

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NAS 2-10927 University of California - San Francisco 1857
Calcium metabolism and correlated endocrine measurements in primates during Cosmos '82

<i>Period</i>	<i>Obligations</i>	
03/01/81-10/31/84	FY82: TOTAL: \$55,412	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cann, C.	ARC/Souza, K.	59-Life Sci, NEC
	ARC/Holton, E.	

NAS 9-15887 University of California - San Francisco 1858
Computerized tomographic determination of spinal bone mineral content

<i>Period</i>	<i>Obligations</i>	
09/15/79-09/14/82	FY82: \$32,400 TOTAL: \$152,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Genant, H. K.	JSC/Altchuler, S. I.	56-Medical Sciences

NAS 9-16027 University of California - San Francisco 1859
Determination of human 1, 25 dihydroxy vitamin D3 (1, 25 OH D3), calcitonin (CT) and parathormone (PHT) levels during the development of disuse osteoporosis

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/81	FY82: TOTAL: \$24,527	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnaud, C.	JSC/Altchuler, S. I.	56-Medical Sciences

NAS 9-16038 University of California - San Francisco 1860
Life science flight experiment insulin and glucose metabolism in man

<i>Period</i>	<i>Obligations</i>	
01/17/80-01/31/82	FY82: TOTAL: \$13,673	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Searle, D. L.	JSC/White, T. T.	59-Life Sci, NEC

NAS 9-16227 University of California - San Francisco 1861
Pathophysiology of mineral loss during increased urinary and fecal calcium excretion

<i>Period</i>	<i>Obligations</i>	
03/01/80-12/31/82	FY82: \$20,000 TOTAL: \$57,697	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnaud, C. D.	JSC/Newkirk, K. E.	59-Life Sci, NEC

NCA 2-665002 University of California - San Francisco 1862
Exploratory studies of the relationship of gastric activity and other physiological measures to motion sickness

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/81	FY82: TOTAL: \$49,446	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	56-Medical Sciences

NCA 2-665003 University of California - San Francisco 1863
Studies on the localization and interconnections of emetic trigger zones in the central nervous system

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/82	FY82: TOTAL: \$48,750	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Snyder, R. L.	ARC/Mehler, W. R.	51-Biological Sci

NCA 2-665004 University of California - San Francisco 1864
Evaluation of osteocalcin as the homeostatic control mechanism for mineralization in bone

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/81	FY82: \$6,225 TOTAL: \$55,851	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cann, C. E.	ARC/Callahan, P. X.	51-Biological Sci

NCA 2-665005 University of California - San Francisco 1865
Effects of adrenergic agents on vasopressin secretion

<i>Period</i>	<i>Obligations</i>	
04/01/80-06/30/81	FY82: TOTAL: \$5,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reid, I. A.	ARC/Keil, L. C.	51-Biological Sci

NCA 2-665006 University of California - San Francisco 1866
Interactions between osmolality and blood volume in the control of vasopressin secretion

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/82	FY82: TOTAL: \$25,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramsay, D. J.	ARC/Keil, L. C.	51-Biological Sci

NCA 2-665007 University of California - San Francisco 1867
Exploratory studies of the cardiovascular parameters of motion sickness

<i>Period</i>	<i>Obligations</i>	
07/01/80-12/31/81	FY82: TOTAL: \$18,787	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Naifeh, K.	ARC/Cowings, P. S.	69-Psych, NEC

NCA 2-665008 University of California - San Francisco 1868
Calcium kinetics during hypokinesia

<i>Period</i>	<i>Obligations</i>	
07/15/80-01/14/83	FY82: \$27,236 TOTAL: \$52,972	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cann, C. E.	ARC/Holton, E. M.	51-Biological Sci

NCA 2-665101 University of California - San Francisco 1869
Role of intermolecular interactions in the self organization of polypeptide models of collagen

<i>Period</i>	<i>Obligations</i>	
11/15/80-11/14/81	FY82: TOTAL: \$19,913	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bhatnagar, R.	ARC/MacElroy, R. D.	51-Biological Sci

NCA 2-665102 University of California - San Francisco 1870
Comparison of the effects of insulin-like growth factor, neurotrophic factor, and somatotropin on muscle growth

<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/83	FY82: \$29,425 TOTAL: \$58,934	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rosen, S. D.	ARC/Ellis, S.	51-Biological Sci

NCA 2-665103 University of California - San Francisco 1871
Role of central catecholaminergic neurons in the control of vasopressin secretion

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/82	FY82: TOTAL: \$6,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reid, I. A.	ARC/Keil, L. C.	51-Biological Sci

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NCA 2-665201 University of California - San Francisco 1872
Regulation of adrenal function during volume expansion

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/83	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dallman, M. F.	ARC/V-danellis, J.	51-Biological Sci
	ARC/Keil, L. C.	

NCA 2-665202 University of California - San Francisco 1873
The physiological role of osteocalcin in homeostatic control of bone

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/83	FY82: \$29,902	TOTAL: \$29,902
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cann, C.	ARC/Callahan, P. X.	51-Biological Sci

NCA 2-665203 University of California - San Francisco 1874
Hormonal responses to head-down bedrest

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/84	FY82: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reid, I. A.	ARC/Keil, L. C.	51-Biological Sci

NCA 2-665903 University of California - San Francisco 1875
Localization of tripeptidyl aminopeptidase and carbonic anhydrase III in rat muscles by light and electron microscopy

<i>Period</i>	<i>Obligations</i>	
06/01/79-12/31/81	FY82: \$48,285	TOTAL: \$48,285
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rosen, S. D.	ARC/Ellis, S.	51-Biological Sci

NCA 2-665904 University of California - San Francisco 1876
Development of computer-controlled studies and a record management system for psychophysiological research

<i>Period</i>	<i>Obligations</i>	
05/01/79-07/31/82	FY82: \$38,500	TOTAL: \$38,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	69-Psych, NEC
Capparell, J.		

NCA 2-665905 University of California - San Francisco 1877
Quantitative determination of diastolic left ventricular properties and dynamic geometry in the dog

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/83	FY82: \$20,968	TOTAL: \$20,968
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glantz, S. A.	ARC/Sandler, H.	56-Medical Sciences

NCA 2-665906 University of California - San Francisco 1878
Ultrastructural studies of ionic transfer through bone cell sheets in isolated perfusion culture

<i>Period</i>	<i>Obligations</i>	
07/01/79-09/30/81	FY82: \$40,882	TOTAL: \$40,882
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnaud, C. D.	ARC/Philpott, D. E.	56-Medical Sciences

NCC 2-115 University of California - San Francisco 1879
A preventive method for the zero-gravity sickness syndrome

<i>Period</i>	<i>Obligations</i>	
01/01/81-10/31/82	FY82: \$151,270	TOTAL: \$216,270
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kamiya, J.	ARC/Cowings, P. S.	61-Biol Aspects

NCC 2-162 University of California - San Francisco 1880
Ultrastructural and biochemical studies of transport by cultured osteosarcoma cells in vitro

<i>Period</i>	<i>Obligations</i>	
10/01/81-09/30/83	FY82: \$47,906	TOTAL: \$47,906
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strewler, G. J.	ARC/Philpott, D. E.	56-Medical Sciences
Arnaud, C. D.		

NCC 2-178 University of California - San Francisco 1881
Bone, calcium, and space flight

<i>Period</i>	<i>Obligations</i>	
03/01/82-11/30/82	FY82: \$12,987	TOTAL: \$12,987
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cann, C. E.	ARC/Holton, E. M.	56-Medical Sciences

NCC 2-181 University of California - San Francisco 1882
Skeletal alterations in adult rats during simulated weightlessness

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$22,683	TOTAL: \$22,683
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arnaud, C. D.	ARC/Holton, E. M.	51-Biological Sci
Wronski, T. J.		

NCC 2-194 University of California - San Francisco 1883
The role of low and high pressure baroreceptors in the control of fluid balance

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$17,976	TOTAL: \$17,976
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramsay, D. J.	ARC/Keil, L. C.	56-Medical Sciences

NGT 05-029-800 University of California - San Francisco 1884
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/82	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kuntz, I.	HQ-LB/Carter, C. H.	51-Biological Sci

NSG 7151 University of California - San Francisco 1885
Light energy conversion in halobacterium

<i>Period</i>	<i>Obligations</i>	
07/01/75-11/30/82	FY82: \$53,922	TOTAL: \$373,527
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stoeckenius, W.	HQ-EB/Devincenzi, D. L.	51-Biological Sci
Bogomolni, R. A.		
Lozler, R. H.		

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NAG 2-20 University of California - Santa Barbara 1886
Modeling the relations of land use/land cover to resource demands

<i>Period</i>	<i>Obligations</i>	
01/01/80-03/31/81	FY82: TOTAL: \$42,990	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clayton, C.	ARC/Norman, S. ARC/Lozier, D.	39-Env Sci, NEC

NAG 6-14 University of California - Santa Barbara 1893
Photoecology, optical properties and remote sensing of warm core rings

<i>Period</i>	<i>Obligations</i>	
04/01/81-09/30/82	FY82: \$100,000 TOTAL: \$142,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, R. C.	GSFC/Hoge, F. E.	33-Oceanography

NAG 2-24 University of California - Santa Barbara 1887
Prime agricultural land monitoring and assessment component of the California integrated remote sensing system

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/80	FY82: TOTAL: \$59,934	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estes, J. E. Tinney, L. R.	ARC/Norman, S. ARC/Hlavka, C.	39-Env Sci, NEC

NAGW 231 University of California - Santa Barbara 1894
Issues in global ecology

<i>Period</i>	<i>Obligations</i>	
07/01/81-08/31/82	FY82: TOTAL: \$56,766	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Botkin, D. B.	HQ-EL/Hogg, H.	54-Env Biology

NAG 2-27 University of California - Santa Barbara 1888
Analytical and experimental investigation of liquid double drop dynamics: Preliminary design for Space Shuttle experiments

<i>Period</i>	<i>Obligations</i>	
04/01/80-12/31/81	FY82: TOTAL: \$23,839	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vanyo, J.	ARC/Brooks, W. F. ARC/Lum, H.	13-Physics

NAGW 290 University of California - Santa Barbara 1895
Ship and satellite bio-optical research in the California blight

<i>Period</i>	<i>Obligations</i>	
02/01/82-09/30/82	FY82: \$100,000 TOTAL: \$100,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, R. C. Baker, K. S.	HQ-EE/Carder, K. L. HQ-EE/Wilson, W. S.	33-Oceanography

NAG 2-48 University of California - Santa Barbara 1889
Thermodynamics of free electron lasers

<i>Period</i>	<i>Obligations</i>	
05/01/80-12/31/82	FY82: TOTAL: \$48,882	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Colson, W. B.	ARC/McKenzie, R. L.	13-Physics

NAGW 323 University of California - Santa Barbara 1896
Global vegetation inventory and monitoring using remote sensing technology

<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$99,005 TOTAL: \$99,005	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strahler, A. H. Bodkin, D. B. Estes, J. E.	HQ-EB/Rambler, M. HQ-EB/Devincenzi, D. L.	54-Env Biology

NAG 2-73 University of California - Santa Barbara 1890
Exploration of evolutionary histories leading to complex life

<i>Period</i>	<i>Obligations</i>	
10/01/80-06/30/83	FY82: \$17,000 TOTAL: \$29,762	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Valentine, J. W.	ARC/Billingham, J.	51-Biological Sci

NAS 9-15509 University of California - Santa Barbara 1897
Forest classification and inventory system using LANDSAT, digital terrain, and ground sample data

<i>Period</i>	<i>Obligations</i>	
04/01/78-11/30/81	FY82: TOTAL: \$148,867	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strahler, A. H.	JSC/Amsbury, D. L.	32-Geological Sci

NAG 2-121 University of California - Santa Barbara 1891
Agricultural land use change detection, California

<i>Period</i>	<i>Obligations</i>	
07/01/81-02/28/82	FY82: TOTAL: \$28,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Sinnott, D. B.	99-Multi-Discip

NAS 9-16077 University of California - Santa Barbara 1898
Develop a plan to define a program of basic research in utilization and evaluation of information derived from remotely sensed data

<i>Period</i>	<i>Obligations</i>	
02/01/80-07/31/81	FY82: TOTAL: \$83,628	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estes, J. E.	JSC/MacDonald, R. B.	32-Geological Sci

NAG 5-177 University of California - Santa Barbara 1892
Neotectonics of the San Andres Fault system-basin and range province juncture

<i>Period</i>	<i>Obligations</i>	
05/01/81-08/31/83	FY82: \$25,000 TOTAL: \$56,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estes, J. E. Crowell, J. C.	GSFC/Lowman, P. D., Jr.	32-Geological Sci

NASW 3392 University of California - Santa Barbara 1899
Conference on fundamental issues in global ecology

<i>Period</i>	<i>Obligations</i>	
03/01/80-07/31/81	FY82: TOTAL: \$102,810	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Botkin, D. B.	HQ-EB/Bredt, J. H.	54-Env Biology

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NCA 2-680101 University of California - Santa Barbara 1900
Ecological interactions among organisms in physically isolated environments: Identification of possible exogenous control parameters

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: TOTAL: \$26,546	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Botkin, D.	ARC/MacElroy, R. D.	54-Env Biology

NCC 2-43 University of California - Santa Barbara 1901
Proposed Universitite regional applications program work plan FY 1980

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY82: TOTAL: \$40,836	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Jones, H. W. ARC/Lumb, D. R.	49-Engr, NEC

NCC 2-63 University of California - Santa Barbara 1902
An investigation of the effect of surface impurities on the absorption kinetics of hydrogen chemisorbed iron

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/83	FY82: \$68,149 TOTAL: \$174,447	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shanabarger, M. R.	ARC/Nelson, H. G.	47-Materials Engr

NCC 2-124 University of California - Santa Barbara 1903
LANDSAT inventory of irrigated lands and small grains

<i>Period</i>	<i>Obligations</i>	
02/01/81-09/30/82	FY82: \$20,000 TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estes, J. E.	ARC/Bauer, E. H.	19-Phys Sci, NEC

NCC 2-157 University of California - Santa Barbara 1904
Modeling techniques for forest management applications

<i>Period</i>	<i>Obligations</i>	
09/15/81-06/14/82	FY82: TOTAL: \$25,390	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strahler, A. H.	ARC/Peterson, D. L. ARC/Brass, J. A.	39-Env Sci, NEC

NCC 5-5 University of California - Santa Barbara 1905
Soil moisture detection using SEASAT data and radar scatterometers

<i>Period</i>	<i>Obligations</i>	
04/01/79-04/30/82	FY82: TOTAL: \$101,003	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estes, J. E. Simonett, D. S.	GSFC/Chang, A.	32-Geological Sci

NGR 05-010-062 University of California - Santa Barbara 1906
Planetary geophysics

<i>Period</i>	<i>Obligations</i>	
03/01/73-01/31/83	FY82: \$43,469 TOTAL: \$233,954	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peale, S. J.	HQ-EL/Quaide, W. L. HQ-EL/Taylor, L. A.	32-Geological Sci

NGT 05-010-800 University of California - Santa Barbara 1907
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$12,054 TOTAL: \$32,754	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strahler, A.	HQ-LB/Carter, C. H.	39-Env Sci, NEC

NGT 05-010-801 University of California - Santa Barbara 1908
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/15/81-09/14/83	FY82: \$11,750 TOTAL: \$23,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dozier, J.	HQ-LB/Carter, C. H.	22-Computer Science

NGT 05-010-802 University of California - Santa Barbara 1909
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$11,800 TOTAL: \$11,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estes, J. E.	HQ-LB/Carter, C. H.	99-Multi-Discip

NGT 05-010-803 University of California - Santa Barbara 1910
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/82-09/30/83	FY82: \$11,750 TOTAL: \$11,750	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ozier, J. D.	HQ-LB/Carter, C. H.	99-Multi-Discip

NSG 2377 University of California - Santa Barbara 1911
Use of collateral information to improve LANDSAT classification accuracies

<i>Period</i>	<i>Obligations</i>	
04/01/79-04/30/81	FY82: TOTAL: \$91,726	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strahler, A. H. Estes, J. E.	ARC/Peterson, D.	39-Env Sci, NEC

NSG 3256 University of California - Santa Barbara 1912
Laser fluorescence studies of the chemical interactions of sodium species with sulfur bearing fuels

<i>Period</i>	<i>Obligations</i>	
03/01/79-12/31/81	FY82: TOTAL: \$74,729	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Steinberg, M. Schofield, K.	LERC/Kohl, F. J. LERC/Stearns, C. A.	12-Chemistry

NSG 5262 University of California - Santa Barbara 1913
Calibration of satellite data for input to distributed parameter hydrologic models

<i>Period</i>	<i>Obligations</i>	
04/01/78-10/31/81	FY82: TOTAL: \$180,232	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dozier, J.	GSFC/Rango, A.	39-Env Sci, NEC

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NSG 7586 University of California - Santa Barbara 1914
Magnetization of lunar samples

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/83	FY82: \$34,995	TOTAL: \$125,991
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fuller, M. D.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NSG 9020 University of California - Santa Barbara 1915
Remnent magnetization of lunar samples

<i>Period</i>	<i>Obligations</i>	
10/31/74-05/31/82	FY82:	TOTAL: \$411,356
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fuller, M. D.	JSC/Dietrich, J. W.	19-Phys Sci, NEC

NAG 5-175 University of California - Santa Cruz 1916
Luminosity calibration of low red shift quasars

<i>Period</i>	<i>Obligations</i>	
04/15/81-01/31/83	FY82: \$7,698	TOTAL: \$14,739
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wampler, E. J.	GSFC/Boggess, A.	11-Astronomy

NAG 8-352 University of California - Santa Cruz 1917
The relations between optical and X-ray emission from quasars and BL Lacertae objects

<i>Period</i>	<i>Obligations</i>	
06/27/80-06/27/82	FY82:	TOTAL: \$6,963
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, J. S.	MSFC/Swearingen, J. C.	11-Astronomy
Blumenthal, G.		

NAG 8-407 University of California - Santa Cruz 1918
The relation between magnetic fields and coronae in late-type stars

<i>Period</i>	<i>Obligations</i>	
06/15/81-06/07/82	FY82:	TOTAL: \$8,750
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vogt, S. S.	MSFC/Stone, J. F.	11-Astronomy

NAGW 195 University of California - Santa Cruz 1919
Summer workshop in astronomy and astrophysics

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/82	FY82:	TOTAL: \$6,782
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Faulkner, J.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
Kraft, R. P.	HQ-EZ/Holt, S. S.	
Lin, D. W.		

NCA 2-690001 University of California - Santa Cruz 1920
Comparison of calculated and observed properties of collapsing protostellar gas clouds

<i>Period</i>	<i>Obligations</i>	
10/01/79-08/31/81	FY82:	TOTAL: \$48,849
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bodenheimer, P.	ARC/Black, D. C.	11-Astronomy
Villere, K. R.		

NCA 2-690101 University of California - Santa Cruz 1921
Study of the chemical composition and homogeneity of the galaxy and study of the operational problems of shuttle infrared telescope (SIRTF) telescope

<i>Period</i>	<i>Obligations</i>	
09/16/81-12/15/82	FY82:	TOTAL: \$29,455
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rank, D. M.	ARC/Witteborn, F. C.	11-Astronomy
	ARC/Werner, M. W.	

NCA 2-690102 University of California - Santa Cruz 1922
Radiative transfer in molecular clouds

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/31/83	FY82: \$27,288	TOTAL: \$42,288
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bodenheimer, P.	ARC/Black, D. C.	11-Astronomy
Villere, K. R.		

NCC 2-169 University of California - Santa Cruz 1923
Astronomical application of IR CID technology

<i>Period</i>	<i>Obligations</i>	
12/01/81-12/31/82	FY82: \$17,626	TOTAL: \$17,626
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rank, D. M.	ARC/McCreight, C. R.	11-Astronomy
	ARC/Goebel, J. H.	

NGR 05-061-015 University of California - Santa Cruz 1924
Infrared instrumentation

<i>Period</i>	<i>Obligations</i>	
07/06/72-09/30/82	FY82:	TOTAL: \$193,385
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rank, D. M.	HQ-EZ/Boggess, N. W.	11-Astronomy

NGT 05-061-800 University of California - Santa Cruz 1925
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
07/01/82-08/31/83	FY82: \$12,500	TOTAL: \$12,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bodenheimer, P.	HQ-LB/Carter, C. H.	11-Astronomy

NSG 5361 University of California - Santa Cruz 1926
Ultraviolet spectroscopy of Tauri stars

<i>Period</i>	<i>Obligations</i>	
06/01/79-01/31/83	FY82: \$3,457	TOTAL: \$13,857
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herbig, G. H.	GSFC/Kondo, Y.	11-Astronomy

NSG 7503 University of California - Santa Cruz 1927
Astronomical applications of charged coupled device technology

<i>Period</i>	<i>Obligations</i>	
11/01/78-08/31/83	FY82:	TOTAL: \$63,558
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, J. S.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Stencel, R. E.	

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NAG 2-192 **University of The Pacific** **1928**
Slotted wall interference in subsonic wind tunnels of arbitrary cross section and using boundary conditions accounting for wall boundary layers

<i>Period</i>	<i>Obligations</i>	
08/15/82-08/31/83	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pejack, E. R.	ARC/Steinle, F. W., Jr.	41-Aero Engr

NAGW 356 **University of The Pacific** **1929**
Bone cell kinetics of simulated weightlessness

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$54,390	TOTAL: \$54,390
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roberts, W. E.	HQ-EB/Halstead, T. W.	51-Biological Sci

NCA 2-588001 **University of The Pacific** **1930**
Laser holographic interferometry for aerodynamics

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/81	FY82:	TOTAL: \$30,817
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Perry, R. L.	ARC/Lee, G.	13-Physics

NCA 2-588002 **University of The Pacific** **1931**
Proliferation and differentiation of periodontal ligament cells and bone cells during simulated weightlessness

<i>Period</i>	<i>Obligations</i>	
03/01/80-08/31/82	FY82: \$4,860	TOTAL: \$33,460
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roberts, W. E.	ARC/Holton, E. M.	59-Life Sci, NEC

NCA 2-588201 **University of The Pacific** **1932**
Test and data reduction techniques for holographic interferometry

<i>Period</i>	<i>Obligations</i>	
05/01/82-10/31/83	FY82: \$15,663	TOTAL: \$15,663
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Perry, R. L.	ARC/Lee, G.	19-Phys Sci, NEC

NCA 2-588202 **University of The Pacific** **1933**
Development of a set of practical pedagogical engineering problems and the associated numerical solution methodologies

<i>Period</i>	<i>Obligations</i>	
06/01/82-09/30/82	FY82: \$3,038	TOTAL: \$3,038
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Topp, W.	ARC/Reinhardt, W.	41-Aero Engr

NCA 2-588203 **University of The Pacific** **1934**
Upgrade of the aerodynamic-aeroelastic computational procedures

<i>Period</i>	<i>Obligations</i>	
06/01/82-09/30/82	FY82: \$3,038	TOTAL: \$3,038
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Topp, W.	ARC/Goorjian, P. M.	22-Computer Science

NAS 2-10161 **University of San Francisco** **1935**
US/USSR radiation protection studies

<i>Period</i>	<i>Obligations</i>	
02/01/79-09/30/81	FY82:	TOTAL: \$76,787
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Souza, K. A.	59-Life Sci, NEC

NAS 8-26758 **University of San Francisco** **1936**
Study for heavy particle, passive, personnel dosimetry using etched particles

<i>Period</i>	<i>Obligations</i>	
01/21/71-09/30/81	FY82:	TOTAL: \$142,704
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Watts, J. W., Jr.	

NAS 8-34340 **University of San Francisco** **1937**
Heavy particle, passive, personnel dosimetry using, etched particles

<i>Period</i>	<i>Obligations</i>	
05/28/81-05/28/83	FY82: \$20,000	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Watts, J. W., Jr.	

NAS 9-15152 **University of San Francisco** **1938**
Automated analysis system for HZE particle trace dosimeters

<i>Period</i>	<i>Obligations</i>	
02/01/77-12/31/82	FY82: \$110,000	TOTAL: \$583,607
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Richmond, R. G.	56-Medical Sciences

NAS 9-15337 **University of San Francisco** **1939**
Definition of Spacelab I experiment on high energy particle dosimetry

<i>Period</i>	<i>Obligations</i>	
04/01/77-09/30/84	FY82: \$53,655	TOTAL: \$103,655
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	JSC/Peck, E. E.	13-Physics

NCA 2-670101 **University of San Francisco** **1940**
Histopathological evaluation of animals in radiation lifespan studies

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$26,057	TOTAL: \$55,865
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. V.	ARC/Kraft, L. M.	51-Biological Sci

NCA 2-670902 **University of San Francisco** **1941**
The evaluation of structural and chemical alterations of bone and red blood cells in the restrained monkey model

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/81	FY82:	TOTAL: \$59,642
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Furst, A.	ARC/Young, D. R.	51-Biological Sci
	ARC/Leon, H. A.	

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NCC 2-47	University of San Francisco	1942			
Histopathological changes in rodents caused by HZE particle irradiation					
<i>Period</i>		<i>Obligations</i>			
01/01/80-12/31/82	FY82: \$47,280	TOTAL: \$125,629			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Benton, E. V.	ARC/Kraft, L. M.	51-Biological Sci			
NCA 2-685003	University of Santa Clara	1949			
Bioassayable growth hormone: Isolation development of a radioimmunoassay and validation of the assay					
<i>Period</i>		<i>Obligations</i>			
10/01/79-02/28/82	FY82:	TOTAL: \$59,992			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fast, T.	ARC/Grindeland, R. E.	51-Biological Sci			
NCC 2-85	University of San Francisco	1943			
Structure and function of isozymes: Evolutionary aspects and role of oxygen in eucaryotic organisms					
<i>Period</i>		<i>Obligations</i>			
06/01/80-11/30/82	FY82: \$22,200	TOTAL: \$104,453			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Satyanarayana, T.	ARC/Klein, H. P.	59-Life Sci, NEC			
	ARC/Volkman, C. M.				
NCA 2-685004	University of Santa Clara	1950			
On the distribution of oxygen sensitivity among bacterial denitrifiers with particular emphasis to its ecological significance					
<i>Period</i>		<i>Obligations</i>			
01/01/80-05/31/82	FY82: \$3,411	TOTAL: \$47,164			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tomlinson, G. A.	ARC/Hochstein, L. I.	51-Biological Sci			
NCA 2-685005	University of Santa Clara	1951			
Clay catalysis of prebiotic polymerizations: Possible roles and mechanisms of action of metal ions					
<i>Period</i>		<i>Obligations</i>			
12/01/79-11/30/81	FY82:	TOTAL: \$34,784			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Sweeney, M. A.	ARC/Lawless, J. E.	12-Chemistry			
NCC 2-135	University of San Francisco	1944			
Early cytological responses of cortical and trabecular bone to immobilization and the histopathogenesis of disuse osteoporosis in the restraint monkey model					
<i>Period</i>		<i>Obligations</i>			
07/01/81-12/16/82	FY82: \$34,183	TOTAL: \$49,183			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brown, R. J.	ARC/Young, D. R.	56-Medical Sciences			
NAG 3-143	University of Santa Clara	1945			
Research and development of heat alcohol fuel usage in automobiles					
<i>Period</i>		<i>Obligations</i>			
11/17/80-03/21/83	FY82: \$434,415	TOTAL: \$824,265			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Pefley, R. K.	LERC/Clark, J. S.	46-Mech Engr			
Nebolon, J. F.					
NAG 3-212	University of Santa Clara	1946			
Correlation of single and multi-state data to improved design and analysis models for axial compressors					
<i>Period</i>		<i>Obligations</i>			
11/24/81-11/23/82	FY82: \$39,984	TOTAL: \$39,984			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Roberts, W. B.	LERC/Sandercoc, D. M.	41-Aero Engr			
Saad, M. A.	LERC/Crouse, J. E.				
NAGW 277	University of Santa Clara	1947			
1982 summer research program in planetary biology and microbial ecology					
<i>Period</i>		<i>Obligations</i>			
01/15/82-04/14/83	FY82: \$93,041	TOTAL: \$93,041			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nealson, K. H.	HQ-EB/Devincenzi, D. L.				
Tomlinson, G. A.		51-Biological Sci			
NCA 2-685002	University of Santa Clara	1948			
Enzyme-linked immunosorbent assay (ELISA) for detecting upper respiratory tract infection					
<i>Period</i>		<i>Obligations</i>			
10/01/79-03/31/83	FY82:	TOTAL: \$15,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Caren, L. D.	ARC/Mandel, A. D.	51-Biological Sci			
NCA 2-685006	University of Santa Clara	1952			
A model for prebiotic translation: Peptide catalysis of polynucleo-t-surfaces' condensation of fluctuating clay surfaces					
<i>Period</i>		<i>Obligations</i>			
01/01/80-04/30/82	FY82:	TOTAL: \$30,207			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
White, D. H.	ARC/Chang, S.	12-Chemistry			
NCA 2-685008	University of Santa Clara	1953			
Ecological studies of the Luguna Figueroa del Norte					
<i>Period</i>		<i>Obligations</i>			
04/15/80-05/15/81	FY82:	TOTAL: \$24,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tomlinson, G. A.	ARC/Deal, P. H.	54-Env Biology			
NCA 2-685101	University of Santa Clara	1954			
LANDSAT display development					
<i>Period</i>		<i>Obligations</i>			
02/09/81-11/30/82	FY82: \$5,960	TOTAL: \$20,376			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Alkhatib, H.	ARC/Jones, H. W., Jr.	39-Env Sci, NEC			
NCA 2-685102	University of Santa Clara	1955			
Video compression development					
<i>Period</i>		<i>Obligations</i>			
08/01/81-10/31/82	FY82: \$23,612	TOTAL: \$42,332			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Alkhatib, H.	ARC/Jones, H. W., Jr.	22-Computer Science			
NCA 2-685202	University of Santa Clara	1956			
A survey of legal questions precipitated by extensions of criminal jurisdiction over U.S. sponsored space activities					
<i>Period</i>		<i>Obligations</i>			
10/01/81-10/01/82	FY82: \$7,000	TOTAL: \$7,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Berg, R.	ARC/Glazer, J. H.	99-Multi-Discip			

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-685203 **University of Santa Clara** **1957**
Nitrite reductases in denitrifying bacteria

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/84	FY82: \$9,544	TOTAL: \$9,544
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tomlinson, G. A.	ARC/Hochstein, L. I.	54-Env Biology

NCC 2-128 **University of Santa Clara** **1964**
Visual prosthetic devices using texture analysis

<i>Period</i>	<i>Obligations</i>	
06/15/81-02/14/83	FY82: \$21,400	TOTAL: \$60,272
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Healy, T. J.	ARC/Grant, T. L.	49-Engr, NEC
	ARC/Lum, H.	

NCA 2-685906 **University of Santa Clara** **1958**
Applications of the two-dimensional model of the Venus ionosphere

<i>Period</i>	<i>Obligations</i>	
06/01/79-06/30/81	FY82:	TOTAL: \$28,686
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCormick, P. T.	ARC/Whitten, R. C.	13-Physics

NCC 2-130 **University of Santa Clara** **1965**
Interpretation of Pioneer Venus orbiter data (PVOD) with the two-dimensional ionosphere model

<i>Period</i>	<i>Obligations</i>	
06/01/81-12/31/82	FY82: \$4,000	TOTAL: \$15,791
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCormick, P. T.	ARC/Whitten, R. C.	19-Phys Sci, NEC

NCC 2-16 **University of Santa Clara** **1959**
The effect of boundary conditions on finite difference solutions of fluid flow problems

<i>Period</i>	<i>Obligations</i>	
07/01/79-10/31/82	FY82: \$33,649	TOTAL: \$120,253
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vinokur, M.	ARC/Lomax, H.	41-Aero Engr

NCC 2-166 **University of Santa Clara** **1966**
Model reactions for prebiotic translation in fluctuating clay environments

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
White, D. H.	ARC/Chang, S.	12-Chemistry

NCC 2-49 **University of Santa Clara** **1960**
An analysis of anticipated psychosocial requirements for future space flight

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/82	FY82:	TOTAL: \$24,957
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Akins, F. R.	ARC/Connors, M.	61-Biol Aspects

NCC 2-170 **University of Santa Clara** **1967**
The Muljadi blot: A means to determine clay-organic interactions

<i>Period</i>	<i>Obligations</i>	
12/01/81-12/31/82	FY82: \$23,475	TOTAL: \$23,475
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sweeney, M.	ARC/Lawless, J. G.	12-Chemistry

NCC 2-60 **University of Santa Clara** **1961**
Wind tunnel simulations of Martian sand storms

<i>Period</i>	<i>Obligations</i>	
02/01/80-04/30/83	FY82: \$75,409	TOTAL: \$203,209
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greeley, R.	ARC/Margozzi, A. P.	99-Multi-Discip
Leach, R.		

NCC 2-180 **University of Santa Clara** **1968**
Growth hormone secretion during space flight and evaluation of the physiological responses of animals held in the research animal holding facility (RAHF)

<i>Period</i>	<i>Obligations</i>	
03/01/82-01/31/83	FY82: \$36,851	TOTAL: \$36,851
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
East, T. N.	ARC/Grindeland, R. E.	51-Biological Sci
	ARC/Oyama, J.	

NCC 2-98 **University of Santa Clara** **1962**
Investigation on the characteristics of turbulence on a step change of transverse surface strain in the swirling boundary layer

<i>Period</i>	<i>Obligations</i>	
10/01/80-10/31/82	FY82:	TOTAL: \$46,432
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Higuchi, H.	ARC/Rubesin, M. W.	41-Aero Engr
	ARC/Marvin, J. G.	

NCC 2-191 **University of Santa Clara** **1969**
Studies in helicopter noise

<i>Period</i>	<i>Obligations</i>	
04/28/82-04/27/83	FY82: \$56,550	TOTAL: \$56,550
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Aggarwal, H. A.	ARC/Tauber, M. E.	41-Aero Engr

NCC 2-117 **University of Santa Clara** **1963**
The application of pulsed-pumped stimulated Raman gain spectroscopy in combustion and flow diagnostics

<i>Period</i>	<i>Obligations</i>	
03/15/81-03/14/82	FY82:	TOTAL: \$32,301
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Perkins, P. E.	ARC/McKenzie, R. L.	13-Physics

NGT 05-017-998 **University of Santa Clara** **1970**
Summer faculty fellowship program in engineering systems design

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/81	FY82:	TOTAL: \$297,890
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Healy, T. J.	HQ-LB/Carter, C. H.	49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAG 1-19 University of Southern California 1971
A study of streamwise vortices

<i>Period</i>	<i>Obligations</i>	
12/05/79-06/04/82	FY82: TOTAL: \$149,649	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blackwelder, R. F.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Anders, J. B.	

NAGW 43 University of Southern California 1978
Creep of orthoenstatite at high temperature and low strain rates

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/83	FY82: \$49,971 TOTAL: \$142,799	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sammis, C. G.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAG 1-235 University of Southern California 1972
Finite element analysis of wrinkling membranes

<i>Period</i>	<i>Obligations</i>	
12/01/81-05/31/83	FY82: \$51,761 TOTAL: \$51,761	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, R. K.	LARC/Fichter, W. B.	41-Aero Engr
Weingarten, V. I.		

NAGW 57 University of Southern California 1979
Comparative planetary aeronomy: Venus studies

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/83	FY82: \$24,008 TOTAL: \$71,008	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kumar, S.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAG 2-77 University of Southern California 1973
Slater orbitals in quantum chemistry calculations

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$55,463 TOTAL: \$104,463	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Segal, G. A.	ARC/Langhoff, S. R.	12-Chemistry

NAGW 62 University of Southern California 1980
A scientific program in planetary atmospheric studies

<i>Period</i>	<i>Obligations</i>	
05/01/80-12/31/82	FY82: \$146,525 TOTAL: \$346,525	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Broadfoot, A. L.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Brunk, W. E.	

NAG 2-95 University of Southern California 1974
Determination of global H2 distribution from the Pioneer Venus orbiter ion mass spectrometer measurements

<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/82	FY82: TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kumar, S.	ARC/Fimmel, R. O.	19-Phys Sci, NEC

NAGW 106 University of Southern California 1981
A study of the Io plasma torus

<i>Period</i>	<i>Obligations</i>	
11/01/80-11/30/82	FY82: \$53,657 TOTAL: \$103,657	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shemansky, D. E.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Brunk, W. E.	

NAG 2-146 University of Southern California 1975
Pioneer 10/11 data analysis of the ultraviolet photometry experiment

<i>Period</i>	<i>Obligations</i>	
10/01/81-11/30/82	FY82: \$85,000 TOTAL: \$85,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Judge, D. L.	ARC/Fimmel, R. O.	19-Phys Sci, NEC

NAGW 146 University of Southern California 1982
Dynamics of the Jovian atmospheres (JDAP)

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$31,025 TOTAL: \$67,025	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maxworthy, T.	HQ-EL/Brinton, H. C.	31-Atmos Sci
Redekopp, L.	HQ-EL/Brunk, W. E.	

NAG 5-126 University of Southern California 1976
Search for shell lines and variability in the ultraviolet spectrum

<i>Period</i>	<i>Obligations</i>	
10/15/80-10/14/82	FY82: TOTAL: \$4,600	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peters, G.	GSFC/Corrigan, J. P.	11-Astronomy

NAGW 147 University of Southern California 1983
Stellar observations with the Voyager extreme ultraviolet objective grating spectrograph

<i>Period</i>	<i>Obligations</i>	
03/01/81-02/28/83	FY82: \$25,000 TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barry, P.	HQ-EZ/Weiler, E. J.	11-Astronomy
Holberg, J. B.	HQ-EL/Brunk, W. E.	

NAGW 13 University of Southern California 1977
A three-dimensional observational study of the solar 5-minute oscillations

<i>Period</i>	<i>Obligations</i>	
01/01/80-01/31/83	FY82: \$83,000 TOTAL: \$225,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rhodes, E. J.	HQ-EZ/Chipman, E.	11-Astronomy

NAGW 161 University of Southern California 1984
Jovian disk and auroral observations: Continuing analysis plan

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$70,000 TOTAL: \$133,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Broadfoot, L. A.	HQ-EL/Brinton, H. C.	13-Physics
	HQ-EL/Brunk, W. E.	

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NAGW 163 University of Southern California 1985
A proposed study of the temporal morphology of the Io plasma utilizing the Pioneer and Voyager extreme ultraviolet data

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$45,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Judge, D. L.	HQ-EL/Brinton, H. C.	13-Physics
Broadfoot, L. A.	HQ-EL/Brunk, W. E.	
Kunc, J.		

NAGW 315 University of Southern California 1986
Investigation of the atmosphere of Io and its interaction with the plasma torus: Voyager IRIS data analysis

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$43,000	TOTAL: \$43,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kumar, S.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Brunk, W. E.	

NAGW 316 University of Southern California 1987
Particle excitation, airglow and H2 vibrational disequilibrium in the atmosphere of Jupiter

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shemansky, D. E.	HQ-EL/Brinton, H. C.	11-Astronomy
	HQ-EL/Brunk, W. E.	

NAGW 317 University of Southern California 1988
Fluorescence studies of phytoplankton pigments: A comparison of classical and laser spectroscopy

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$34,100	TOTAL: \$34,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kiefer, D.	HQ-EE/Carder, K. L.	33-Oceanography
Soo Hoo, J. B.	HQ-EE/Wilson, W. S.	

NAGW 335 University of Southern California 1989
Acoustic applications to ocean productivity: Instrument development and testing

<i>Period</i>	<i>Obligations</i>	
04/15/82-04/14/83	FY82: \$48,202	TOTAL: \$48,202
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pieper, R. E.	HQ-EE/Carder, K. L.	33-Oceanography
	HQ-EE/Wilson, W. S.	

NAS 2-6558 University of Southern California 1990
Pioneer F/G analysis of ultraviolet experiment

<i>Period</i>	<i>Obligations</i>	
09/01/71-09/30/81	FY82:	TOTAL: \$1,468,891
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Judge, D. L.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J. W.	

NASW 3235 University of Southern California 1991
Operation of NASA industrial application center

<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/81	FY82:	TOTAL: \$935,429
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mixer, R.	HQ-ET/Bivins, R.G.	99-Multi-Discip
	HQ-ET/Ault, L. A.	

NASW 3461 University of Southern California 1992
Technology transfer to minority enterprises

<i>Period</i>	<i>Obligations</i>	
01/12/81-06/30/82	FY82:	TOTAL: \$82,318
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
King, R. G.	HQ-ET/Gilbert, R. L.	99-Multi-Discip
Mixer, R.	HQ-ET/Whitten, R.	

NASW 3470 University of Southern California 1993
Operation of NASA industrial application center

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/82	FY82: \$57,915	TOTAL: \$277,677
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mixer, R.	HQ-ET/Bivins, R. G.	99-Multi-Discip
King, R.	HQ-ET/Ault, L. A.	

NCA 2-730101 University of Southern California 1994
The escape of H2O from Venus

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$14,998	TOTAL: \$35,001
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kumar, S.	ARC/Pollack, J. B.	11-Astronomy

NGR 05-018-178 University of Southern California 1995
Dynamics of rotating-stratified flows with applications to the Jovian atmosphere

<i>Period</i>	<i>Obligations</i>	
09/11/72-08/31/82	FY82:	TOTAL: \$464,265
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maxworthy, T.	HQ-EL/Murphy, R. E.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NGR 05-018-180 University of Southern California 1996
Photon-molecule interaction studies of the atmospheric gases

<i>Period</i>	<i>Obligations</i>	
08/31/72-04/30/83	FY82: \$62,293	TOTAL: \$582,488
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Judge, D. L.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NSG 1536 University of Southern California 1997
Electro-deposition of III-V compounds and their alloys from molten salts with special reference large area solar cells

<i>Period</i>	<i>Obligations</i>	
09/01/78-05/31/81	FY82:	TOTAL: \$96,312
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kroger, F. A.	LARC/Conway, E. J.	47-Materials Engr
	LARC/Walker, G. H.	

NSG 2351 University of Southern California 1998
Theoretical developments in the computation of the electronic properties of molecules

<i>Period</i>	<i>Obligations</i>	
01/01/79-04/30/82	FY82:	TOTAL: \$73,560
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Segal, G. A.	ARC/Jaffee, R. L.	21-Mathematics

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 5108 **University of Southern California** **1999**
Rocket experiments to measure the solar intensity and profile

<i>Period</i>	<i>Obligations</i>	
04/01/76-01/31/83	FY82: \$135,166	TOTAL: \$603,308
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Judge, D. L.	GSFC/Early, L. J.	13-Physics
Carlson, R. W.		

NSG 5356 **University of Southern California** **2000**
Study of the nature of shells in stars

<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY82:	TOTAL: \$4,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peters, G. J.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5422 **University of Southern California** **2001**
A comparative study of the far ultraviolet spectra of BE stars

<i>Period</i>	<i>Obligations</i>	
10/15/79-01/31/83	FY82: \$11,300	TOTAL: \$44,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peters, G. J.	GSFC/Boggess, A.	11-Astronomy

NSG 7367 **University of Southern California** **2002**
Complementary pairing of amino acids, schiff bases and a reverse translation mechanism for the origin of the genetic code under pre-biotic conditions

<i>Period</i>	<i>Obligations</i>	
10/01/77-05/31/82	FY82: \$40,000	TOTAL: \$327,094
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Strehler, B. L.	HQ-EB/Geib, D. S.	51-Biological Sci

NSG 7535 **University of Southern California** **2003**
Development of room temperature mercuric iodide X-ray detectors for in-site analysis of extra terrestrial objects

<i>Period</i>	<i>Obligations</i>	
01/26/79-11/30/82	FY82: \$90,162	TOTAL: \$274,104
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dabrowski, A. J.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NSG 7595 **University of Southern California** **2004**
A study of atmospheric development of exospheric planetary bodies

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/82	FY82:	TOTAL: \$91,792
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shemansky, D. E.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NSG 7644 **University of Southern California** **2005**
Application of improved detector technology to a continuing program of solar-system observations

<i>Period</i>	<i>Obligations</i>	
11/02/79-11/30/82	FY82: \$30,000	TOTAL: \$330,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Broadfoot, A. L.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

COLORADO

NAG 3-197 **Colorado School of Mines** **2006**
Studies of the mechanisms of jet fuel/instability

<i>Period</i>	<i>Obligations</i>	
08/01/81-07/30/83	FY82: \$46,379	TOTAL: \$106,313
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Daniel, S. R.	LERC/Bittker, D. A.	12-Chemistry

NAG 2-157 **Colorado State University** **2007**
Experiments with phase transitions at very high pressure

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/83	FY82: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spain, I. L.	ARC/Nelson, H. G.	47-Materials Engr

NAG 2-171 **Colorado State University** **2008**
High pressures properties of hydrogen and other atomic and molecular solids, methods for utilizing atomic hydrogen as a fuel, and properties of finite systems in 2 and 3 dimensions

<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$49,983	TOTAL: \$49,983
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Etters, R. D.	ARC/Nelson, H. G.	47-Materials Engr

NAG 3-40 **Colorado State University** **2009**
Development of models for nonlinear fracture processes

<i>Period</i>	<i>Obligations</i>	
06/01/80-07/15/82	FY82:	TOTAL: \$77,836
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, F. W.	LERC/Smith, G. T.	46-Mech Engr
	LERC/Orange, T. W.	

NAG 3-43 **Colorado State University** **2010**
Ion beam microtexturing of surfaces

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/82	FY82:	TOTAL: \$40,201
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Robinson, R. S.	LERC/Kerslake, W. R.	19-Phys Sci, NEC
Kaufman, H. A.		

NAG 3-209 **Colorado State University** **2011**
Sputtering phenomena in ion thrusters

<i>Period</i>	<i>Obligations</i>	
12/01/81-02/28/83	FY82:	TOTAL: \$29,660
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Robinson, R. S.	LERC/Mantenieks, M. A.	13-Physics
Kaufman, H. R.		

NAG 5-58 **Colorado State University** **2012**
A laboratory investigation of the reflective properties of simulated, optically thick clouds

<i>Period</i>	<i>Obligations</i>	
05/15/80-09/30/82	FY82:	TOTAL: \$135,050
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McKee, T. B.	GSFC/King, M. D.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAG 5-88 Colorado State University 2013
Radiometer measurements of snowpack
Period Obligations
08/01/80-09/30/81 FY82: TOTAL: \$40,411
Prin. Invest. NASA Tech. Officer CASE Category
Boyne, H. S. GSFC/Rango, A. 19-Phys Sci, NEC

NAS 2-10151 Colorado State University 2020
Carrot tumor growth in hypogravity
Period Obligations
02/01/80-08/31/80 FY82: TOTAL: \$37,697
Prin. Invest. NASA Tech. Officer CASE Category
Baker, R. ARC/Souza, K. A. 51-Biological Sci
Hendrix, J. ARC/Chetirkin, P. V.
Curtis, C. R.

NAG 5-136 Colorado State University 2014
Atmospheric planetary wave response to extreme forcing
Period Obligations
02/01/81-03/31/83 FY82: \$71,777 TOTAL: \$136,777
Prin. Invest. NASA Tech. Officer CASE Category
Stevens, D. E. GSFC/Shukla, J. 31-Atmos Sci
Reiter, E. R.

NAS 5-22959 Colorado State University 2021
Earth radiation budget sensor support
Period Obligations
01/23/76-09/30/82 FY82: \$4,086 TOTAL: \$220,086
Prin. Invest. NASA Tech. Officer CASE Category
Vonderhaar, T. H. GSFC/Cherrix, G. T. 39-Env Sci, NEC

NAG 5-276 Colorado State University 2015
Reflectance modeling for predicting bidirectional reflectance distribution patterns
Period Obligations
09/15/82-09/14/83 FY82: \$102,995 TOTAL: \$102,995
Prin. Invest. NASA Tech. Officer CASE Category
Smith, J. A. GSFC/Kimes, D. 55-Agriculture Sci

NAS 5-25696 Colorado State University 2022
Processing of LANDSAT data for change detection research
Period Obligations
06/06/79-12/08/80 FY82: TOTAL: \$3,438
Prin. Invest. NASA Tech. Officer CASE Category
Maxwell, E. L. GSFC/Toll, D. 39-Env Sci, NEC

NAG 9-10 Colorado State University 2016
Life spans of skin fibroblasts from irradiated primates
Period Obligations
06/16/80-02/28/83 FY82: \$97,000 TOTAL: \$122,000
Prin. Invest. NASA Tech. Officer CASE Category
Lett, J. T. JSC/Nachtwey, D. S. 54-Env Biology

NCA 2-165001 Colorado State University 2023
A vectorized multigrd for the Cauchy-Riemann equations
Period Obligations
05/01/80-08/31/81 FY82: TOTAL: \$16,999
Prin. Invest. NASA Tech. Officer CASE Category
Thomas, J. W. ARC/Lomax, H. 21-Mathematics

NAGW 8 Colorado State University 2017
Experiments with phase transitions at very high pressure
Period Obligations
10/01/79-04/29/82 FY82: TOTAL: \$185,000
Prin. Invest. NASA Tech. Officer CASE Category
Spain, I. L. LERC/Jones, W. R. 13-Physics

NCA 2-165201 Colorado State University 2024
A multilevel scheme for the Cauchy-Riemann equations
Period Obligations
06/01/82-12/31/83 FY82: \$6,500 TOTAL: \$6,500
Prin. Invest. NASA Tech. Officer CASE Category
Thomas, J. W. ARC/Lomax, H. 21-Mathematics

NAS 1-15580 Colorado State University 2018
Satellite cloud digital data tapes (GOES)
Period Obligations
03/13/79-03/31/81 FY82: TOTAL: \$112,000
Prin. Invest. NASA Tech. Officer CASE Category
Vonderhaar, T. H. LARC/Harrison, E. F. 31-Atmos Sci
LARC/Cooper, J. E.

NGR 06-002-112 Colorado State University 2025
An experimental investigation of hollow cathode discharge start-up and operation
Period Obligations
12/21/70-09/30/83 FY82: \$165,891 TOTAL: \$913,951
Prin. Invest. NASA Tech. Officer CASE Category
Wilbur, P. J. LERC/Kerslake, W. R. 46-Mech Engr

NAS 1-16465 Colorado State University 2019
Scientific investigations for the Earth radiation budget experiment (ERBE)
Period Obligations
09/30/80-09/29/85 FY82: \$38,000 TOTAL: \$63,000
Prin. Invest. NASA Tech. Officer CASE Category
Vonderhaar, T. H. LARC/Hall, J. B. 31-Atmos Sci
LARC/Barkstrom, B. R.

NGR 06-002-159 Colorado State University 2026
Bulk properties of atomic triplet hydrogen and high pressure equation of state for solid hydrogen
Period Obligations
12/04/72-08/31/82 FY82: \$180 TOTAL: \$288,366
Prin. Invest. NASA Tech. Officer CASE Category
Etters, R. D. LERC/Hendricks, R. C. 13-Physics

NGT 06-002-800 Colorado State University 2027
Graduate student researchers program
Period Obligations
09/01/80-08/31/83 FY82: \$13,000 TOTAL: \$34,910
Prin. Invest. NASA Tech. Officer CASE Category
Smith, J. A. HQ-LB/Carter, C. H. 54-Env Biology

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NSG 1594 Colorado State University 2028
Approaching the ultimate velocimeter: Laser techniques for measuring molecular flows

<i>Period</i>	<i>Obligations</i>	
02/01/79-02/28/83	FY82: \$50,000	TOTAL: \$258,511
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
She, C. Y.	LARC/Exton, R. J.	13-Physics
Fairbanks, W. M., Jr.	LARC/Hillard, M. E.	

NAG 5-1 Fort Lewis College 2035
Investigations relative to statistical procedures for thermal vacuum test optimization

<i>Period</i>	<i>Obligations</i>	
01/15/80-07/31/81	FY82:	TOTAL: \$26,602
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, R. E.	GSFC/Kruger, R.	49-Engr, NEC
Byrd, J. W.		

NSG 3011 Colorado State University 2029
Experimental investigations of argon and xenon ion sources

<i>Period</i>	<i>Obligations</i>	
07/01/74-09/28/83	FY82: \$149,972	TOTAL: \$555,918
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaufman, H. R.	LERC/Rawlin, V. K.	13-Physics
Robinson, R. S.		

NAG 5-162 Fort Lewis College 2036
Dynamic processing element memory allocation for the massively parallel processor

<i>Period</i>	<i>Obligations</i>	
04/01/81-10/31/82	FY82:	TOTAL: \$26,621
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bell, G. W.	GSFC/Fischer, J. R.	22-Computer Science

NSG 3127 Colorado State University 2030
Effects of turbulence on laminar separation on aerodynamic surfaces such as airfoils blading

<i>Period</i>	<i>Obligations</i>	
10/01/76-01/19/83	FY82: \$5,000	TOTAL: \$328,837
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sadeh, W. Z.	LERC/Sockol, P. M.	41-Aero Engr

NAG 1-59 University of Colorado - Boulder 2037
Effect of external flow in existing turbulence

<i>Period</i>	<i>Obligations</i>	
04/03/80-04/02/83	FY82:	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Uberoi, M. S.	LARC/Stainback, P. C.	41-Aero Engr
	LARC/Harvey, W. D.	

NSG 3196 Colorado State University 2031
Space environmental effects on high voltage solar arrays

<i>Period</i>	<i>Obligations</i>	
05/15/78-12/12/82	FY82: \$7,028	TOTAL: \$166,278
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaufman, H. R.	LERC/Grier, N. T.	13-Physics

NAG 1-170 University of Colorado - Boulder 2038
Molecular photofragmentation processes related to solar-pumped gas laser development

<i>Period</i>	<i>Obligations</i>	
04/01/81-09/30/82	FY82:	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leone, S. R.	LARC/Jalufka, R. W.	13-Physics
	LARC/Conway, E. J.	

NSG 5341 Colorado State University 2032
Research of satellite inferences of convective storm intensity

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/82	FY82:	TOTAL: \$159,662
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cotton, W. R.	GSFC/Heymsfield, G. M.	31-Atmos Sci
Tripoli, G. J.		

NAG 2-58 University of Colorado - Boulder 2039
Influence of gravity independent parameters on the constitutive behavior of soil

<i>Period</i>	<i>Obligations</i>	
08/01/80-03/31/83	FY82: \$20,000	TOTAL: \$95,420
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sture, S.	ARC/Brooks, W. F.	44-Civil Engr
	ARC/Lum, H.	

NSG 5357 Colorado State University 2033
Initial studies of middle and upper tropospheric stratiform clouds

<i>Period</i>	<i>Obligations</i>	
06/01/79-12/31/81	FY82:	TOTAL: \$157,649
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cox, S. K.	GSFC/Curran, R. J.	31-Atmos Sci

NAG 2-178 University of Colorado - Boulder 2040
Pioneer class planetary mission definition and analysis support

<i>Period</i>	<i>Obligations</i>	
04/01/82-09/30/83	FY82: \$24,998	TOTAL: \$24,998
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stuart, J. R.	ARC/Jackson, R. W.	42-Astro Engr
	ARC/Murphy, J. P.	

NSG 9045 Colorado State University 2034
Effects of heavy ions on optic tissues

<i>Period</i>	<i>Obligations</i>	
10/01/76-06/30/82	FY82:	TOTAL: \$209,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lett, J. T.	JSC/Nachtwey, D. S.	59-Life Sci, NEC

NAG 2-197 University of Colorado - Boulder 2041
Low cost Mars mission assessment

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$19,999	TOTAL: \$19,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stuart, J. R.	ARC/Jackson, R. W.	42-Astro Engr
	ARC/Murphy, J. P.	

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COLORADO (Continued)**

NAG 5-21 University of Colorado - Boulder 2042
Gravity measurements in support of long baseline geodesy

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/82	FY82: TOTAL: \$40,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitcomb, J. H.	GSFC/Kouns, C. W.	32-Geological Sci
Anderson, D.		

NAG 5-193 University of Colorado - Boulder 2049
Spectroscopic studies of interstellar matter and stellar mass loss

<i>Period</i>	<i>Obligations</i>	
07/01/81-01/31/83	FY82: \$21,020 TOTAL: \$30,020	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shull, J. M.	GSFC/Kondo, Y.	11-Astronomy
Brugel, E. W.		

NAG 5-22 University of Colorado - Boulder 2043
Modeling of tectonophysical distortion from measurements of long-baseline geodetic data

<i>Period</i>	<i>Obligations</i>	
03/01/80-05/31/82	FY82: \$11,234 TOTAL: \$73,746	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitcomb, J. H.	GSFC/Kouns, C. W.	32-Geological Sci
	GSFC/Allenby, R. J.	

NAG 5-199 University of Colorado - Boulder 2050
International ultraviolet experiment studies

<i>Period</i>	<i>Obligations</i>	
07/15/81-11/14/82	FY82: \$26,648 TOTAL: \$39,300	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ayres, T. R.	GSFC/Kondo, Y.	11-Astronomy
Simon, T.		
Linsky, J. L.		

NAG 5-78 University of Colorado - Boulder 2044
Spectroscopic observations of selected stellar systems

<i>Period</i>	<i>Obligations</i>	
07/01/80-12/31/82	FY82: \$10,000 TOTAL: \$52,360	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Conti, P. S.	GSFC/Kondo, Y.	11-Astronomy
Garmany, C. D.		

NAG 5-211 University of Colorado - Boulder 2051
Multi-anode microchannel array detector systems

<i>Period</i>	<i>Obligations</i>	
10/01/81-12/31/82	FY82: \$97,965 TOTAL: \$97,965	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Timothy, J. G.	GSFC/Early, L. J.	11-Astronomy

NAG 5-82 University of Colorado - Boulder 2045
International Ultraviolet Explorer (IUE) studies of cool stars

<i>Period</i>	<i>Obligations</i>	
07/01/80-12/31/82	FY82: \$68,394 TOTAL: \$139,750	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Linsky, J. L.	GSFC/Kondo, Y.	11-Astronomy
Marcy, G.		
Ayres, T. R.		

NAG 5-212 University of Colorado - Boulder 2052
Research relative to middle atmosphere solar irradiance rocket measurements

<i>Period</i>	<i>Obligations</i>	
10/15/81-10/14/82	FY82: \$237,058 TOTAL: \$237,058	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mount, G. H.	GSFC/Mentall, J. E.	31-Atmos Sci

NAG 5-96 University of Colorado - Boulder 2046
Study of reflection grating spectrometers for X-ray astronomy

<i>Period</i>	<i>Obligations</i>	
09/01/80-03/31/83	FY82: \$117,934 TOTAL: \$252,384	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cash, W. C.	GSFC/Early, L. J.	11-Astronomy
	WFC/Pless, R. H.	

NAG 5-213 University of Colorado - Boulder 2053
Studies of the cyprus superbubble

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$10,565 TOTAL: \$10,565	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cash, W. C., Jr.	GSFC/Bogges, A.	11-Astronomy
Shull, J. M.		

NAG 5-111 University of Colorado - Boulder 2047
Interstellar observations of OB associations with the Capernicus satellite

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY82: TOTAL: \$11,557	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shull, J. M.	GSFC/Corrigan, J. P.	11-Astronomy

NAG 8-382 University of Colorado - Boulder 2054
A critical test of the rotation-coronae correlation with selected Hertzsprung gap stars

<i>Period</i>	<i>Obligations</i>	
09/22/80-09/21/81	FY82: TOTAL: \$7,775	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simon, T. S.	MSFC/Stone, J. F.	11-Astronomy
Linsky, J.		

NAG 5-142 University of Colorado - Boulder 2048
Research relative to short-term cryosphere cloud interactions near the snow/ice limit

<i>Period</i>	<i>Obligations</i>	
03/01/81-03/31/83	FY82: \$54,400 TOTAL: \$110,545	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barry, R. G.	GSFC/Zwally, H. J.	31-Atmos Sci
	GSFC/Parkinson, C. L.	

NAG 8-384 University of Colorado - Boulder 2055
Study of the X-ray superbubble in Cygnus using data from HEAO-1

<i>Period</i>	<i>Obligations</i>	
12/22/80-12/22/81	FY82: TOTAL: \$4,999	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cash, W. C., Jr.	MSFC/Stone, J. F.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
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NAG 8-398 University of Colorado - Boulder 2056
A sensitive search for coronal emission from the archetype giants (BOO and AQR)

<i>Period</i>	<i>Obligations</i>	
06/03/81-06/02/82	FY82:	TOTAL: \$7,355
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ayres, T. R.	MSFC/Stone, J. F.	11-Astronomy

NAG 8-400 University of Colorado - Boulder 2057
Search for coronal X-ray emission from the young stars in the Ursa Major cluster and stream

<i>Period</i>	<i>Obligations</i>	
07/10/81-07/09/82	FY82:	TOTAL: \$8,974
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Linsky, J. L.	MSFC/Stone, J. F.	11-Astronomy

NAG 8-424 University of Colorado - Boulder 2058
Monitoring soft X-ray variability in three O stars

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$6,616	TOTAL: \$6,616
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Snow, T. P., Jr, Cash, W. C., Jr. Grady, C. A.	MSFC/Stone, J. F.	11-Astronomy

NAG 8-437 University of Colorado - Boulder 2059
Presentation of results from study of the X-ray superbubble in Cygnus using data from HEAO-1

<i>Period</i>	<i>Obligations</i>	
07/01/82-08/30/82	FY82: \$1,845	TOTAL: \$1,845
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cash, W. C., Jr.	MSFC/Stone, J. F.	11-Astronomy

NAG 8-439 University of Colorado - Boulder 2060
The rotation-activity connection in single F0-G5 stars, RS Cvn survey follow-up, an investigation of the two component corona, rapidly rotating G giants

<i>Period</i>	<i>Obligations</i>	
07/30/82-07/29/83	FY82: \$7,500	TOTAL: \$7,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Linsky, J. Walter, F.	MSFC/Stone, J. F.	11-Astronomy

NAGW 91 University of Colorado - Boulder 2061
Turbulence and wave-particle interactions in solar-terrestrial plasmas

<i>Period</i>	<i>Obligations</i>	
07/01/80-05/31/83	FY82: \$225,500	TOTAL: \$625,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dulk, G. A.	HQ-EE/Butler, D. M.	13-Physics

NAGW 155 University of Colorado - Boulder 2062
A program to study high altitude cloud distributions for the Jupiter data analysis program

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$50,000	TOTAL: \$87,473
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hord, C. W. West, R. A.	HQ-EL/Brinton, H. C. HQ-EL/Brunk, W. E.	13-Physics

NAGW 156 University of Colorado - Boulder 2063
Analysis of Voyager imaging methane band photometry

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$40,000	TOTAL: \$51,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
West, R. A.	HQ-EL/Brinton, H. C.	13-Physics

NAGW 197 University of Colorado - Boulder 2064
Theoretical research programs in physics at planetary atmospheres, radiative transfer theory and data interpretation

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$48,638	TOTAL: \$123,633
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hord, C. W.	HQ-EL/Brinton, H. C. HQ-EL/Brunk, W. E.	31-Atmos Sci

NAGW 203 University of Colorado - Boulder 2065
Study of grazing incidence spectrometer for ultraviolet astronomy

<i>Period</i>	<i>Obligations</i>	
05/15/81-05/14/83	FY82:	TOTAL: \$52,918
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cash, W. C., Jr.	HQ-EZ/Weiler, E. J.	11-Astronomy

NAGW 292 University of Colorado - Boulder 2066
Studies of odd nitrogen in Earth's atmosphere

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$24,992	TOTAL: \$24,992
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rusch, D. W.	HQ-EE/Chandra, S. HQ-EE/Watson, R. T.	31-Atmos Sci

NAGW 343 University of Colorado - Boulder 2067
Pulse-counting imaging detector system for solar system studies

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Timothy, J. G.	HQ-EL/Brinton, H. C. HQ-EL/Brunk, W. E.	31-Atmos Sci

NAGW 358 University of Colorado - Boulder 2068
The development of mini-microchannel plate detectors for planetary ultraviolet spectroscopy

<i>Period</i>	<i>Obligations</i>	
08/15/82-01/14/83	FY82: \$77,730	TOTAL: \$77,730
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barth, C.	HQ-EL/Brinton, H. C. HQ-EL/Brunk, W. E.	31-Atmos Sci

NAGW 363 University of Colorado - Boulder 2069
Pilot study and evaluation of a SMMR-derived sea ice data base

<i>Period</i>	<i>Obligations</i>	
07/15/82-07/14/83	FY82: \$21,930	TOTAL: \$21,930
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barry, R. G.	HQ-EE/Carder, K. L. HQ-EE/Wilson, W. S.	33-Oceanography

**NASA'S UNIVERSITY PROGRAM
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NAS 2-9477 University of Colorado - Boulder 2070
Pioneer Venus data analysis of the orbiter ultraviolet spectrometer experiment

<i>Period</i>	<i>Obligations</i>	
08/30/77-09/30/82	FY82: \$146,300	TOTAL: \$939,251
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stewart, I. A.	ARC/Fimmel, R. O.	19-Phys Sci, NEC
Thomas, G. E.		

NAS 5-11405 University of Colorado - Boulder 2071
University of Colorado ultraviolet nitric oxide experiment for atmosphere Explorer

<i>Period</i>	<i>Obligations</i>	
03/17/71-05/31/83	FY82: \$29,990	TOTAL: \$1,095,632
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stewart, A. I.	GSFC/Bullock, G. D.	31-Atmos Sci

NAS 5-23274 University of Colorado - Boulder 2072
Development of models for physical properties of stellar chromospheres

<i>Period</i>	<i>Obligations</i>	
08/01/73-09/30/80	FY82:	TOTAL: \$129,753
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Linsky, J. L.	GSFC/Boggess, A.	11-Astronomy

NAS 5-25887 University of Colorado - Boulder 2073
Nutation and polar motion of the Earth number three

<i>Period</i>	<i>Obligations</i>	
09/25/79-12/24/80	FY82:	TOTAL: \$26,745
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, M. L.	GSFC/Stephanides, C. C.	32-Geological Sci

NAS 5-25957 University of Colorado - Boulder 2074
Magnetic field monitor satellite investigation: Investigation of geomagnetic field forecasting and fluid dynamics of the core

<i>Period</i>	<i>Obligations</i>	
12/27/79-11/26/82	FY82: \$5,000	TOTAL: \$79,748
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Benton, E. R.	GSFC/Oseroff, H.	32-Geological Sci

NAS 5-26170 University of Colorado - Boulder 2075
Study of the ultraviolet ozone spectrometer for the upper atmosphere research satellites (UARS)

<i>Period</i>	<i>Obligations</i>	
09/23/80-12/31/81	FY82:	TOTAL: \$93,506
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mount, G. H.	GSFC/Browne, W. H.	31-Atmos Sci

NAS 5-26172 University of Colorado - Boulder 2076
Study of the ultraviolet solar spectral irradiance experiment for the upper atmosphere research satellites (UARS)

<i>Period</i>	<i>Obligations</i>	
09/23/80-12/31/82	FY82: \$197,646	TOTAL: \$375,457
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rottman, G. J.	GSFC/Browne, W. H.	31-Atmos Sci
London, J.		

NAS 5-26303 University of Colorado - Boulder 2077
Study of the response of upper atmosphere parameters to variation of solar activity (UARS)

<i>Period</i>	<i>Obligations</i>	
10/01/80-12/30/81	FY82:	TOTAL: \$24,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
London, J.	GSFC/Reber, C. A.	31-Atmos Sci

NAS 5-26409 University of Colorado - Boulder 2078
Operation of the IUE data center at Boulder

<i>Period</i>	<i>Obligations</i>	
03/24/81-03/31/83	FY82: \$110,259	TOTAL: \$172,895
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Snow, T. P.	GSFC/Boggess, A.	11-Astronomy

NAS 5-26535 University of Colorado - Boulder 2079
Study of solar energetic particles acceleration and propagation

<i>Period</i>	<i>Obligations</i>	
04/23/81-05/31/83	FY82: \$10,000	TOTAL: \$25,450
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zweibel, E. G.	GSFC/Ramaty, R.	13-Physics

NAS 5-27236 University of Colorado - Boulder 2080
Crustal dynamics investigation of the eastern Mediterranean

<i>Period</i>	<i>Obligations</i>	
05/06/82-05/06/83	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wyss, M.	GSFC/Mead, G. D.	32-Geological Sci

NAS 5-27263 University of Colorado - Boulder 2081
A study of the response of upper atmosphere parameters to variations of solar activity

<i>Period</i>	<i>Obligations</i>	
07/07/82-12/31/82	FY82: \$27,822	TOTAL: \$27,822
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
London, J.	GSFC/Donley, J.	31-Atmos Sci

NAS 5-27370 University of Colorado - Boulder 2082
Modelling of tectonophysical distortion from measurement of long-baseline geodetic data and other geophysical parameters

<i>Period</i>	<i>Obligations</i>	
09/28/82-09/28/84	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitcomb, J. H.	GSFC/Mead, G. D.	32-Geological Sci

NAS 8-31958 University of Colorado - Boulder 2083
Study of geophysical fluid dynamics with electro-hydrodynamics polarization forces

<i>Period</i>	<i>Obligations</i>	
03/26/76-12/31/82	FY82: \$84,672	TOTAL: \$455,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hart, J. E.	MSFC/Jones, C. T.	39-Env Sci, NEC
Toomre, J.	MSFC/Fichtl, G. H.	

NASW 3589 University of Colorado - Boulder 2084
Support of balloon borne ultraviolet stellar spectrograph

<i>Period</i>	<i>Obligations</i>	
12/02/81-12/01/82	FY82: \$85,353	TOTAL: \$85,353
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Snow, T. P.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Boggess, N. W.	

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NCA 2-170201	University of Colorado - Boulder	2085	Chromatographic columns for separation and analysis of constituents of planetary atmospheres
<i>Period</i>	<i>Obligations</i>		
01/01/82-12/31/82	FY82: \$20,000	TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Sievers, R. E.	ARC/Pollock, G. E.	12-Chemistry	
NCA 2-170202	University of Colorado - Boulder	2086	Design of three dimensional aerodynamic configuration using numerical optimization procedures
<i>Period</i>	<i>Obligations</i>		
06/01/82-05/31/84	FY82: \$15,900	TOTAL: \$15,900	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Chow, C. Y.	ARC/Holst, T. L. ARC/Hicks, R. M.	41-Aero Engr	
NGL 06-003-052	University of Colorado - Boulder	2087	Theoretical and experimental research program in physics of planetary atmospheres
<i>Period</i>	<i>Obligations</i>		
06/28/66-07/30/83	FY82: \$53,626	TOTAL: \$4,794,457	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Barth, C. A.	HQ-EL/Brinton, H. C. HQ-EL/Brunk, W. E.	31-Atmos Sci	
NGL 06-003-057	University of Colorado - Boulder	2088	Basic research in solar physics
<i>Period</i>	<i>Obligations</i>		
09/05/67-10/31/82	FY82: \$80,300	TOTAL: \$1,295,758	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Linsky, J. L.	HQ-EZ/Chipman, E.	13-Physics	
NGL 06-003-200	University of Colorado - Boulder	2089	Application of space technology to practical problems such as those currently facing the mountain sections of the state of Colorado
<i>Period</i>	<i>Obligations</i>		
07/11/72-08/31/82	FY82:	TOTAL: \$825,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Ives, J. D.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC	
NGR 06-003-127	University of Colorado - Boulder	2090	Data reduction-coordinated experiments
<i>Period</i>	<i>Obligations</i>		
08/18/69-01/31/81	FY82:	TOTAL: \$996,906	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Barth, C. A.	HQ-EL/Brinton, H. C.	31-Atmos Sci	
NSG 2248	University of Colorado - Boulder	2091	Heterogeneous chemistry: Association reactions, cluster formation, and surface phenomena
<i>Period</i>	<i>Obligations</i>		
07/01/77-06/30/82	FY82:	TOTAL: \$225,595	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Castleman, A. W.	ARC/Pollack, J. B. ARC/Whitten, R. C.	12-Chemistry	
NSG 5103	University of Colorado - Boulder	2092	Rocket research in the ultraviolet airglow and aurora of planetary atmospheres
<i>Period</i>	<i>Obligations</i>		
02/01/76-03/31/83	FY82: \$222,010	TOTAL: \$1,371,356	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Barth, C. A. Hathaway, D. D.	GSFC/Early, L. J. GSFC/Pless, R. H.	19-Phys Sci, NEC	
NSG 5153	University of Colorado - Boulder	2093	Research of observed and theoretical variations of atmospheric ozone
<i>Period</i>	<i>Obligations</i>		
01/17/77-03/31/83	FY82: \$72,983	TOTAL: \$438,851	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
London, J.	GSFC/Frederick, J.	31-Atmos Sci	
NSG 5178	University of Colorado - Boulder	2094	Rocket research in solar ultraviolet spectroscopy
<i>Period</i>	<i>Obligations</i>		
06/01/77-01/09/83	FY82: \$189,782	TOTAL: \$889,372	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Rottman, G. T.	GSFC/Early, L. J.	13-Physics	
NSG 5300	University of Colorado - Boulder	2095	Research of stellar wind velocity in Alpha Cam using ultraviolet data from the International Ultraviolet Explorer (IUE)
<i>Period</i>	<i>Obligations</i>		
09/15/78-03/31/83	FY82: \$10,000	TOTAL: \$294,835	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Snow, T. P., Jr. Seab, C. G.	GSFC/Kondo, Y.	11-Astronomy	
NSG 5303	University of Colorado - Boulder	2096	Ultraviolet measurements with high spectral resolution
<i>Period</i>	<i>Obligations</i>		
09/15/78-09/14/83	FY82: \$205,127	TOTAL: \$1,040,742	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Snow, T. P., Jr. McClintock, W. E. Cash, W. C., Jr.	GSFC/Early, L. J. GSFC/Pless, R. H.	11-Astronomy	
NSG 5318	University of Colorado - Boulder	2097	Supergranulation velocity fields and their relation to magnetically active regions
<i>Period</i>	<i>Obligations</i>		
01/15/79-02/14/83	FY82:	TOTAL: \$40,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Gebbie, K. B.	GSFC/Wende, C.	31-Atmos Sci	
NSG 5372	University of Colorado - Boulder	2098	Theoretical studies of odd nitrogen in the mesosphere and lower thermosphere
<i>Period</i>	<i>Obligations</i>		
06/01/79-07/31/81	FY82:	TOTAL: \$93,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
Rusch, D. W.	GSFC/Reed, E. I.	31-Atmos Sci	

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NSG 7128 University of Colorado - Boulder 2099
 Studies of X-ray ultraviolet and optical emission from galactic X-ray sources
Period *Obligations*
 03/01/75-09/30/82 FY82: \$71,262 TOTAL: \$272,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McCray, R. HQ-EZ/Kaluzienski, L. 11-Astronomy
 HQ-EZ/Opp, A. G.

NSG 7231 University of Colorado - Boulder 2100
 A rocket program to measure minor neutral species in the Earth's atmosphere from 30 km to 110 km
Period *Obligations*
 04/01/76-03/31/83 FY82: \$72,500 TOTAL: \$593,499
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Thomas, R. J. HQ-EE/Watson, R. T. 31-Atmos Sci
 Rusch, D. W. HQ-EE/Hilsenrath, E.
 Sonders, R. W.

NSG 7287 University of Colorado - Boulder 2101
 Study of the solar corona using radio observation
Period *Obligations*
 07/01/76-10/31/82 FY82: \$50,000 TOTAL: \$242,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dulk, G. A. HQ-EZ/Chipman, E. 13-Physics

NSG 7291 University of Colorado - Boulder 2102
 Research in solar physics with emphasis on empirical non-equilibrium thermodynamics
Period *Obligations*
 09/01/76-01/31/83 FY82: \$26,500 TOTAL: \$155,333
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Thomas, R. N. HQ-EZ/Chipman, E. 13-Physics

NSG 7459 University of Colorado - Boulder 2103
 Development and test of multi-anode microchannel array detector system
Period *Obligations*
 06/01/78-05/31/83 FY82: \$335,000 TOTAL: \$1,396,949
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Timothy, J. G. HQ-EZ/Weiler, E. J. 13-Physics
 HQ-EZ/Boggess, N. W.

NSG 7507 University of Colorado - Boulder 2104
 X-ray emission, electron acceleration, and related flare problems
Period *Obligations*
 10/01/78-10/31/81 FY82: TOTAL: \$140,830
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, D. F. HQ-EZ/Chipman, E. 13-Physics
 Choi, Y.

NSG 7511 University of Colorado - Boulder 2105
 Basic research in solar physics: Energy transport in the solar envelope and atmosphere
Period *Obligations*
 10/01/78-09/30/82 FY82: \$51,576 TOTAL: \$203,576
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gebbie, K. B. HQ-EZ/Chipman, E. 13-Physics

NSG 7559 University of Colorado - Boulder 2106
 Measurement of solar spectral irradiances at wavelengths between 40 and 3100 angstroms
Period *Obligations*
 03/01/79-12/31/81 FY82: TOTAL: \$597,178
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Barth, C. A. HQ-EB/Watson, R. T. 31-Atmos Sci
 Mount, G. H. HQ-EB/Chandra, S.

NSG 7584 University of Colorado - Boulder 2107
 Mechanisms of deformation and failure appropriate to lunar conditions
Period *Obligations*
 05/01/79-01/31/83 FY82: \$63,033 TOTAL: \$335,343
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Spetzler, H. A. HQ-EL/Quaide, W. L. 32-Geological Sci
 HQ-EL/Taylor, L. A.

NSG 7626 University of Colorado - Boulder 2108
 High resolution spectrophotometric observations of interstellar absorption lines
Period *Obligations*
 08/01/79-08/31/83 FY82: TOTAL: \$92,416
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Snow, T. P. HQ-EZ/Weiler, E. J. 11-Astronomy
 HQ-EZ/Boggess, N. W.

NSG 7637 University of Colorado - Boulder 2109
 Accuracy of gravitational physics tests using ranges to the inner planets
Period *Obligations*
 08/01/79-01/31/82 FY82: TOTAL: \$36,812
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ashby, N. HQ-EZ/Weiler, E. J. 11-Astronomy

NSG 5394 University of Colorado - Denver 2110
 International ultraviolet experiment observations of Mars
Period *Obligations*
 07/01/79-06/30/82 FY82: TOTAL: \$15,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lane, A. L. GSFC/Boggess, A. 11-Astronomy
 Conway, R.

NAG 1-56 University of Denver 2111
 Solar extinction radiometry
Period *Obligations*
 05/15/80-08/14/82 FY82: TOTAL: \$79,937
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Goldman, A. LARC/Goad, J. H. 31-Atmos Sci
 Murcay, D. G. LARC/McCormick, M. P.

NAG 1-57 University of Denver 2112
 Balloonborne spectrometer measurements of ultraviolet visible solar limb extinction
Period *Obligations*
 04/01/80-06/30/81 FY82: TOTAL: \$26,525
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Murcay, D. G. LARC/Goad, J. H. 31-Atmos Sci
 Goldman, A. LARC/McCormick, M. P.
 Williams, W. J.

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NAGW 158 **University of Denver** **2113**
Wave mechanism in space plasma driven by non-Maxwellian
distributions
Period *Obligations*
03/15/81-03/14/83 FY82: \$26,400 TOTAL: \$56,279
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Patel, V. L. HQ-EE/Lynch, J. T. 13-Physics
 HQ-EE/Evans, N.

NAS 8-34604 **University of Denver** **2120**
Cloud physics experiment simulation crystal growth in a cloud
simulation facility
Period *Obligations*
12/10/81-12/09/83 FY82: \$60,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Plooster, M. N. MSFC/Fogle, V. 13-Physics
 MSFC/Williams, J. R.

NAS 1-14929 **University of Denver** **2114**
Stratospheric aerosol and gas experiment
Period *Obligations*
07/18/77-03/31/82 FY82: TOTAL: \$130,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murcray, D. G. LARC/McMaster, L. R. 31-Atmos Sci
 LARC/McCormick, M. P.

NAS 9-15991 **University of Denver** **2121**
Life sciences shuttle instrumentation development
Period *Obligations*
11/01/79-11/30/82 FY82: \$44,290 TOTAL: \$394,768
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sturm, R. E. JSC/Booher, C. R. 59-Life Sci, NEC

NAS 1-16306 **University of Denver** **2115**
Science support for Earth radiation budget satellite/stratospheric
aerosol and gas experiment
Period *Obligations*
08/22/80-08/21/85 FY82: \$45,000 TOTAL: \$83,819
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murcray, D. G. LARC/McMaster, L. R. 31-Atmos Sci
 LARC/McCormick, M. P.

NASW 3466 **University of Denver** **2122**
Transfer research impact studies support of NASA's program
for transfer research impact studies
Period *Obligations*
02/01/81-01/31/83 FY82: \$350,000 TOTAL: \$700,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, S. D. HQ-ET/Ault, L. A. 99-Multi-Discip
 HQ-ET/Orrick, D. W.

NAS 2-10158 **University of Denver** **2116**
Airborne measurements of minor gas constituents of the
stratosphere
Period *Obligations*
02/01/79-02/28/82 FY82: TOTAL: \$564,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murcray, D. G. ARC/Munoz, R. M. 31-Atmos Sci
Goldman, A. ARC/Margozzi, A. P.
Williams, W. J.

NCC 1-48 **University of Denver** **2123**
Collaborative study of high resolution infrared atmospheric
spectra
Period *Obligations*
12/01/80-11/30/82 FY82: \$20,000 TOTAL: \$34,995
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldman, A. LARC/Seals, R. K., Jr. 31-Atmos Sci
 LARC/Smith, M. A.

NAS 2-11186 **University of Denver** **2117**
Measurements of compounds of interest in stratospheric
chemistry using infrared techniques
Period *Obligations*
03/01/82-02/28/85 FY82: \$377,000 TOTAL: \$377,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murcray, D. G. ARC/Margozzi, A. P. 31-Atmos Sci

NSG 1432 **University of Denver** **2124**
Collecting, analyzing and archiving of solar spectra from Denver
and Mt. Evans
Period *Obligations*
07/11/77-11/10/82 FY82: \$59,868 TOTAL: \$336,676
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murcray, D. G. LARC/Seals, R. K., Jr. 39-Env Sci, NEC
 LARC/Smith, M. A.

NAS 5-26364 **University of Denver** **2118**
Stratospheric molecular spectra parameter study
Period *Obligations*
10/17/80-11/16/82 FY82: \$18,000 TOTAL: \$37,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldman, A. GSFC/Kunde, V. G. 39-Env Sci, NEC

NCC 2-41 **University of Southern Colorado** **2125**
Technology research for strapdown inertial experiments
Period *Obligations*
10/01/79-10/31/82 FY82: \$150,975 TOTAL: \$391,664
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carestia, R. A. ARC/Callas, G. P. 42-Astro Engr
Cottrell, D. E.

NAS 5-26627 **University of Denver** **2119**
Measurement of X-rays in the mesosphere
Period *Obligations*
07/02/81-12/31/82 FY82: \$16,400 TOTAL: \$36,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barcus, J. R. GSFC/Goldberg, R. A. 11-Astronomy

NCC 2-91 **University of Southern Colorado** **2126**
Investigation of distributed microcomputer methods for high
authority auto flight systems
Period *Obligations*
10/01/80-10/31/82 FY82: \$75,304 TOTAL: \$149,059
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dunn, W. R. ARC/Webster, L. 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)**

NSG 9051 **University of Southern Colorado** **2127**
Electron microprobe study of lunar and planetary zoned plagioclase feldspars
Period *Obligations*
02/01/77-03/31/83 FY82: TOTAL: \$76,529
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, R. K. JSC/Lofgren, G. 19-Phys Sci, NEC

NSG 3238 **University of Connecticut** **2134**
Turbine endwall two-cylinder program
Period *Obligations*
01/02/79-01/01/83 FY82: \$45,087 TOTAL: \$144,497
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Langston, L. S. LERC/Goldman, L. J. 46-Mech Engr

CONNECTICUT

NAG 1-153 **University of Connecticut** **2128**
An investigation of shape preserving curve and surface approximation with applications
Period *Obligations*
03/01/81-02/28/83 FY82: \$24,980 TOTAL: \$54,680
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roulier, J. A. LARC/Park, S. K. 29-Math/Cmputer,NEC
 LARC/Shoosmith, J. N.

NSG 5075 **University of Connecticut** **2135**
Modelling the terrestrial hydrology of the global atmosphere
Period *Obligations*
08/17/75-01/31/83 FY82: \$33,995 TOTAL: \$318,050
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bock, P. GSFC/Halem, M. 31-Atmos Sci
Lin, J. D.

NAG 2-72 **University of Connecticut** **2129**
Stochastic control and identification of helicopter dynamic modes
Period *Obligations*
01/01/81-10/31/82 FY82: \$10,000 TOTAL: \$88,313
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bar-shalom, Y. ARC/Warmbrodt, W. 41-Aero Engr
 ARC/Johnson, W.

NSG 5346 **University of Connecticut** **2136**
Hydro-meteorological modeling of soil moisture and interactive moisture transport processes
Period *Obligations*
05/01/79-11/30/82 FY82: \$42,077 TOTAL: \$125,432
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lin, J. D. GSFC/Halem, M. 31-Atmos Sci
Bock, P.

NAG 3-64 **University of Connecticut** **2130**
Droplet impact dynamics and heat transfer
Period *Obligations*
06/01/80-05/30/83 FY82: \$43,283 TOTAL: \$127,769
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowley, W. W. LERC/Olsen, W. 41-Aero Engr
Rivard, E. E.

NSG 7450 **University of Connecticut** **2137**
Factors affecting assimilatory nitrate reduction by prokaryotes
Period *Obligations*
06/01/78-04/30/82 FY82: TOTAL: \$186,482
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leadbetter, E. R. HQ-EB/Devincenzi, D. L. 51-Biological Sci

NAG 3-160 **University of Connecticut** **2131**
Elevated temperature biaxial fatigue
Period *Obligations*
02/15/81-02/13/83 FY82: \$56,378 TOTAL: \$116,796
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jordan, E. H. LERC/Kaufman, A. 49-Engr, NEC

NAGW 244 **Wesleyan University** **2138**
Morphology and evolution of the Valles Marineris wall scarps
Period *Obligations*
10/01/81-09/30/82 FY82: \$14,949 TOTAL: \$14,949
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Patton, P. C. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/Holt, H. E.

NAG 3-271 **University of Connecticut** **2132**
Development of novel aligned ferrous superalloys
Period *Obligations*
04/15/82-04/14/83 FY82: \$65,029 TOTAL: \$65,029
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nowotny, H. LERC/Stephens, J. R. 47-Materials Engr

NAG 1-37 **Yale University** **2139**
Rotational coherent anti-Stokes Raman spectroscopy (CARS) application
Period *Obligations*
03/01/80-02/28/83 FY82: \$60,000 TOTAL: \$180,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, R. K. LARC/Hoppe, J. C. 13-Physics
Snow, J. B. LARC/Hunter, W. W.

NASW 3191 **University of Connecticut** **2133**
Operation of an industrial applications center
Period *Obligations*
01/01/78-12/31/81 FY82: TOTAL: \$1,532,230
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilde, D. HQ-ET/Bivins, R. E. 99-Multi-Discip

NAG 2-15 **Yale University** **2140**
Experimental and theoretical study of heteromolecular nucleation of vapors occurring in the atmosphere
Period *Obligations*
01/01/80-12/31/82 FY82: \$34,000 TOTAL: \$148,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wegener, P. P. ARC/Toon, O. B. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
CONNECTICUT (Continued)**

NAG 3-201 **Yale University** **2141**
Theory of mass transfer from combustion gases
Period *Obligations*
09/01/81-08/30/83 FY82: \$50,000 TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosner, D. E. LERC/Kohl, F. J. 43-Chem Engr
LERC/Benford, S. M.

NAG 5-188 **Yale University** **2142**
Ultraviolet energy distribution of selected galaxies
Period *Obligations*
06/15/81-10/14/82 FY82: TOTAL: \$2,829
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oemler, A., Jr. GSFC/Boggess, A. 11-Astronomy
Gunn, J. E.

NAGW 175 **Yale University** **2143**
Early differentiation of the Moon: Experimental modeling studies
Period *Obligations*
02/01/81-01/31/83 FY82: \$50,000 TOTAL: \$109,384
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Longhi, J. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NAGW 251 **Yale University** **2144**
Theoretical studies on prebiotic conditions
Period *Obligations*
09/15/81-09/14/83 FY82: \$25,801 TOTAL: \$25,801
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morowitz, H. J. HQ-EB/Devincenzi, D. L. 12-Chemistry

NAS 8-33572 **Yale University** **2145**
Experimental test for violations of the equivalence principle by weak interactions
Period *Obligations*
09/05/79-09/04/81 FY82: TOTAL: \$7,849
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, P. D. MSFC/Eby, P. 11-Astronomy
MSFC/Decher, R.

NAS 8-34383 **Yale University** **2146**
Containerless high temperature property measurements by atomic fluorescence
Period *Obligations*
06/10/81-06/09/84 FY82: \$75,000 TOTAL: \$198,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nordine, P. C. MSFC/Fallon, R. A. 19-Phys Sci, NEC
MSFC/Ethridge, E. S.

NAS 8-34903 **Yale University** **2147**
Satellite data application to baroclinic wave structure
Period *Obligations*
07/29/82-07/28/85 FY82: \$64,243 TOTAL: \$64,243
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Saltzman, B. MSFC/Fichel, B. G. 31-Atmos Sci
Tang, G. M. MSFC/Kaufman, J. I.

NGL 07-004-005 **Yale University** **2148**
Low-power, low-speed data storage and processing equipment
Period *Obligations*
01/01/71-02/28/82 FY82: \$18,000 TOTAL: \$914,619
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barker, R. C. GSFC/Wallgreen, K. 45-Elec Engr

NSG 2185 **Yale University** **2149**
Early detection of acute respiratory infections
Period *Obligations*
10/01/76-05/31/83 FY82: \$60,000 TOTAL: \$255,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Evans, A. S. ARC/Mandel, A. D. 56-Medical Sciences
Niederman, J. C.

NSG 3107 **Yale University** **2150**
Deposition of condensible impurities on surfaces immersed in hot gases
Period *Obligations*
07/15/76-07/14/82 FY82: TOTAL: \$157,140
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosner, D. E. LERC/Kohl, F. J. 47-Materials Engr
LERC/Stearns, C. A.

NSG 3169 **Yale University** **2151**
Experimentation studies of the formation/deposition of sodium sulfate in/from combustion gases
Period *Obligations*
11/15/77-08/31/83 FY82: TOTAL: \$214,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosner, D. E. LERC/Kohl, F. J. 12-Chemistry
LERC/Stearns, C. A.

NSG 7290 **Yale University** **2152**
Membranes and circadian rhythms in plants
Period *Obligations*
10/01/76-10/31/82 FY82: \$62,370 TOTAL: \$311,790
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Galston, A. W. HQ-EB/Halstead, T. W. 51-Biological Sci

DELAWARE

NAG 1-281 **University of Delaware** **2153**
Mechanically fastened joints in woven fabric composites
Period *Obligations*
06/01/82-05/31/83 FY82: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pipes, R. B. LARC/Dow, M. B. 41-Aero Engr
LARC/Howell, W. E.

NAG 3-121 **University of Delaware** **2154**
Inlet flow distortion in turbo machinery
Period *Obligations*
10/27/80-04/26/82 FY82: TOTAL: \$33,878
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seidel, B. S. LERC/Farrell, C. A. 41-Aero Engr
LERC/Adamczyk, J. J.

**NASA'S UNIVERSITY PROGRAM
DELAWARE (Continued)**

NAG 3-321 University of Delaware 2155
 Design rules for a 100X maximum efficiency GaAs concentrator solar cell for space applications

<i>Period</i>	<i>Obligations</i>	
08/09/82-11/09/82	FY82: \$12,005	TOTAL: \$12,005
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barnett, A. M.	LERC/Weinberg, I.	45-Elec Engr
	LERC/Flood, D.	

NAG 5-107 University of Delaware 2156
 Research relative to a climatically-derived global soil moisture data set

<i>Period</i>	<i>Obligations</i>	
08/15/80-06/14/83	FY82: \$63,000	TOTAL: \$136,233
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Willmott, C. J.	GSFC/Shukla, J.	31-Atmos Sci

NAG 8-390 University of Delaware 2157
 Spectra of white dwarf X-ray sources

<i>Period</i>	<i>Obligations</i>	
12/04/80-12/03/81	FY82:	TOTAL: \$5,985
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shipman, H. L.	MSFC/Stone, J. F.	11-Astronomy

NAS 5-26254 University of Delaware 2158
 University of Delaware LANDSAT applications technical assistance services

<i>Period</i>	<i>Obligations</i>	
08/21/80-05/31/82	FY82:	TOTAL: \$21,061
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Klemas, V.	GSFC/Gervin, J. C.	39-Env Sci, NEC
	GSFC/Witt, R. G.	

NAS 5-26273 University of Delaware 2159
 Investigation of the stability of naturally occurring glasses

<i>Period</i>	<i>Obligations</i>	
09/01/80-03/27/83	FY82: \$23,524	TOTAL: \$47,868
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glass, W. P.	GSFC/Alterescu, S.	43-Chem Engr
	GSFC/O'keefe, J. A.	

NAS 5-26915 University of Delaware 2160
 Improvement, construction and calibration of the Wallops wave height probe

<i>Period</i>	<i>Obligations</i>	
04/01/82-12/31/82	FY82: \$9,517	TOTAL: \$9,517
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Klemas, V.	GSFC/Huang, N. E.	33-Oceanography
Zheng, Q.	GSFC/Long, S. R.	

NGT 08-001-800 University of Delaware 2161
 Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/31/82	FY82:	TOTAL: \$10,715
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, J.	HQ-LB/Carter, C. H.	39-Env Sci, NEC

NSG 1304 University of Delaware 2162
 Damage repair technology in composite materials

<i>Period</i>	<i>Obligations</i>	
05/01/76-08/31/82	FY82: \$17,850	TOTAL: \$378,803
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pipes, R. B.	LARC/Deaton, J. W.	46-Mech Engr
	LARC/Dow, M. B.	

DISTRICT OF COLUMBIA

NAG 3-84 The Catholic University of America 2163
 Rapid determination of aviation fuel freezing points

<i>Period</i>	<i>Obligations</i>	
10/01/80-01/31/82	FY82:	TOTAL: \$47,735
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moynihan, C. T.	LERC/Friedman, R.	43-Chem Engr

NAS 5-26226 The Catholic University of America 2164
 Development of instrumentation for measurement of scattering from mirrors and black surfaces

<i>Period</i>	<i>Obligations</i>	
06/30/80-03/01/82	FY82:	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lally, J. F.	GSFC/Heaney, J. B.	45-Elec Engr
Meister, R.		

NAS 5-27343 The Catholic University of America 2165
 Study of high frequency sterling cycle compressor, for dynamic balancing

<i>Period</i>	<i>Obligations</i>	
08/03/82-02/02/83	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deshpande, M. D.	GSFC/Studer, P. A.	49-Engr, NEC
	GSFC/Wilson, M. W.	

NGR 09-005-063 The Catholic University of America 2166
 Interaction of the solar wind with the Moon

<i>Period</i>	<i>Obligations</i>	
04/15/69-10/31/81	FY82:	TOTAL: \$304,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whang, Y. C.	HQ-EZ/Schmerling, E. R.	13-Physics

NGT 09-005-800 The Catholic University of America 2167
 Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/30/82	FY82:	TOTAL: \$18,480
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Werntz, C. W.	HQ-LB/Carter, C. H.	13-Physics

NSG 5066 The Catholic University of America 2168
 Research of solar hard X-rays and gamma-rays

<i>Period</i>	<i>Obligations</i>	
05/01/75-05/14/83	FY82: \$50,790	TOTAL: \$203,575
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Werntz, C. W.	GSFC/Trombka, J. I.	13-Physics

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NSG 5111 The Catholic University of America 2169
Research of properties of material in the submillimeter wave region

<i>Period</i>	<i>Obligations</i>	
09/01/76-08/31/81	FY82: TOTAL: \$70,647	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kelley, G. L.	GSFC/McAvoy, N.	13-Physics
Meister, R.		

NAG 1-185 George Washington University 2176
Raster graphics extension to the CORE system

<i>Period</i>	<i>Obligations</i>	
05/01/81-01/31/83	FY82: TOTAL: \$42,556	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Foley, J. D.	LARC/Speray, D. E.	22-Computer Science
	LARC/Shoosmith, J. N.	

NSG 5173 The Catholic University of America 2170
Atom-molecule reactions of chemical importance in the stratosphere

<i>Period</i>	<i>Obligations</i>	
06/01/77-02/29/84	FY82: TOTAL: \$226,680	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hunt, J. B.	GSFC/Nava, D. F.	12-Chemistry
Michael, J. V.		

NAG 1-199 George Washington University 2177
Research program in active control/aeroelasticity

<i>Period</i>	<i>Obligations</i>	
08/01/81-07/31/83	FY82: \$50,144 TOTAL: \$95,840	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Gardner, J. E.	41-Aero Engr

NSG 7422 The Catholic University of America 2171
Expansion of the solar wind from coronal holes

<i>Period</i>	<i>Obligations</i>	
04/01/78-03/31/83	FY82: \$10,984 TOTAL: \$221,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whang, Y. C.	HQ-EZ/Chipman, E.	13-Physics

NAG 2-40 George Washington University 2178
Transonic airfoil-design by optimization methods in the Joint Institute for Advancement of Flight Sciences at NASA/Langley Research Center

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/82	FY82: TOTAL: \$15,455	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hafez, M. M.	ARC/Chapman, G. T.	41-Aero Engr
	ARC/Hicks, R. M.	

NAG 1-13 George Washington University 2172
Program of research in helicopter aerodynamic theory

<i>Period</i>	<i>Obligations</i>	
12/01/79-03/31/82	FY82: TOTAL: \$54,019	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Demarais, R. N.	41-Aero Engr
Runyan, H. L.		

NAG 5-83 George Washington University 2179
Application of discrete random media techniques for active and passive modeling of subsurface media

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/82	FY82: TOTAL: \$65,003	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lang, R. H.	GSFC/Meneghini, R.	45-Elec Engr

NAG 1-136 George Washington University 2173
Program of research in high-speed aerodynamics in the Joint Institute for Advancement of Flight Sciences

<i>Period</i>	<i>Obligations</i>	
12/09/80-12/08/82	FY82: \$36,823 TOTAL: \$74,581	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Jones, R. A.	41-Aero Engr

NAG 5-265 George Washington University 2180
Discrete random media techniques for microwave modeling of vegetated terrain

<i>Period</i>	<i>Obligations</i>	
08/15/82-01/14/83	FY82: \$30,000 TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lang, R. H.	GSFC/Choudhury, B.	55-Agriculture Sci

NAG 1-158 George Washington University 2174
Effects of low velocity impact on strength characteristics of composite materials laminates

<i>Period</i>	<i>Obligations</i>	
03/01/81-02/28/83	FY82: \$75,000 TOTAL: \$156,729	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Prior, E. J.	47-Materials Engr
	LARC/Eiber, W.	

NAS 1-14605 George Washington University 2181
Experimental and analytical engineering and applied science support of Langley Research Center programs

<i>Period</i>	<i>Obligations</i>	
09/02/76-09/01/83	FY82: \$44,674 TOTAL: \$266,682	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Duberg, J. E.	41-Aero Engr
Whitesides, J. L.	LARC/Erickson, W. D.	

NAG 1-179 George Washington University 2175
Software reliability models for fault-tolerant avionics computers and related topics

<i>Period</i>	<i>Obligations</i>	
07/01/81-12/31/82	FY82: TOTAL: \$99,905	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, D. R.	LARC/Migneault, G. E.	29-Math/Computer, NEC
	LARC/Finelli, G. B.	

NAS 5-26797 George Washington University 2182
Conduct research in graphical display of N-dimensional data

<i>Period</i>	<i>Obligations</i>	
11/03/81-12/03/82	FY82: \$99,929 TOTAL: \$99,929	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sibert, J. L.	GSFC/Truszoski, W. F.	22-Computer Science
Foley, J. D.		

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NAS 5-27273 **George Washington University** **2183**
A study of computer networks

<i>Period</i>	<i>Obligations</i>	
06/14/82-06/13/83	FY82: \$51,000	TOTAL: \$51,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, T. N.	GSFC/Ondrus, P. J.	45-Elec Engr

NCC 1-36 **George Washington University** **2190**
Research program in materials science

<i>Period</i>	<i>Obligations</i>	
06/01/80-11/30/82	FY82: \$98,990	TOTAL: \$414,209
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Swann, R. T.	47-Materials Engr
Esterling, D. M.		

NAS 9-16461 **George Washington University** **2184**
Assessing space station studies as related to national needs

<i>Period</i>	<i>Obligations</i>	
09/24/81-12/01/82	FY82:	TOTAL: \$18,276
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Logsdon, J.	JSC/Wolfer, B.	49-Engr, NEC

NCC 1-39 **George Washington University** **2191**
Program of research in environmental modeling

<i>Period</i>	<i>Obligations</i>	
04/01/80-08/31/83	FY82:	TOTAL: \$110,984
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Callis, L. B.	31-Atmos Sci
	LARC/Tolson, R. H.	

NASW 3165 **George Washington University** **2185**
Scientific communication in planetary biology and bioscience

<i>Period</i>	<i>Obligations</i>	
04/17/78-02/28/83	FY82: \$201,194	TOTAL: \$654,949
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waters, E., Jr.	HQ-EB/Halstead, T. W.	59-Life Sci, NEC
	HQ-EB/Soffen, G. A.	

NCC 1-44 **George Washington University** **2192**
Research program in aeronautics

<i>Period</i>	<i>Obligations</i>	
08/01/80-07/31/83	FY82:	TOTAL: \$255,212
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Prior, E. J.	41-Aero Engr
Whitesides, J. L.	LARC/Hohl, F.	

NCC 1-14 **George Washington University** **2186**
Aeroacoustics research program in Joint Institute for Advancement of Flight Sciences (JIAFS)

<i>Period</i>	<i>Obligations</i>	
05/15/79-01/31/83	FY82: \$104,202	TOTAL: \$410,273
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Chestnutt, D.	41-Aero Engr

NCC 1-47 **George Washington University** **2193**
A core program in the Joint Institute for Advancement of Flight Sciences at the NASA Langley Research Center

<i>Period</i>	<i>Obligations</i>	
11/04/80-11/03/82	FY82: \$112,067	TOTAL: \$361,772
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Hohl, F.	41-Aero Engr
	LARC/Prior, E. J.	

NCC 1-19 **George Washington University** **2187**
A research program in atmospheric science

<i>Period</i>	<i>Obligations</i>	
07/01/79-05/31/83	FY82:	TOTAL: \$167,755
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Callis, L. B.	31-Atmos Sci
	LARC/Tolson, R. H.	

NGR 09-010-078 **George Washington University** **2194**
Research programs in structures and dynamics

<i>Period</i>	<i>Obligations</i>	
01/06/72-12/31/82	FY82: \$219,000	TOTAL: \$1,863,657
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/McComb, H. G., Jr.	41-Aero Engr
	LARC/Card, M. F.	

NCC 1-24 **George Washington University** **2188**
Programs of research in flight sciences

<i>Period</i>	<i>Obligations</i>	
08/15/79-01/31/83	FY82: \$76,306	TOTAL: \$449,789
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Foughner, J. T., Jr.	41-Aero Engr
Whitesides, J. L.		

NGR 09-010-085 **George Washington University** **2195**
Aircraft noise reduction research

<i>Period</i>	<i>Obligations</i>	
02/21/73-06/30/83	FY82:	TOTAL: \$690,128
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Morgan, H. G.	41-Aero Engr

NCC 1-29 **George Washington University** **2189**
Research program in flight dynamics in the Joint Institute for Advancement of Flight Sciences (JIAFS) at the NASA Langley Research Center

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/82	FY82: \$39,413	TOTAL: \$228,086
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Suit, W. T.	41-Aero Engr
	LARC/Lallman, F. J.	

NGR 09-010-096 **George Washington University** **2196**
Research program in microwave remote sensing

<i>Period</i>	<i>Obligations</i>	
09/01/73-11/30/81	FY82:	TOTAL: \$174,639
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Croswell, W. F.	45-Elec Engr
	LARC/Schrader, J. H.	

**NASA'S UNIVERSITY PROGRAM
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NGT 09-010-800 George Washington University 2197
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/03/81-04/30/83	FY82: \$10,590	TOTAL: \$21,123
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silverman, B. G.	HQ-LB/Carter, C. H.	49-Engr, NEC

NAG 3-228 Howard University 2205
Microwave GaAs field effect transistor and pin diode switches

<i>Period</i>	<i>Obligations</i>	
11/25/81-11/24/82	FY82: \$34,120	TOTAL: \$34,120
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wang, Y. C.	LERC/Downey, A. N.	45-Elec Engr

NSG 1110 George Washington University 2198
Antenna and wave propagation applied to avionics systems

<i>Period</i>	<i>Obligations</i>	
10/01/74-05/31/82	FY82:	TOTAL: \$171,511
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Bailey, M. C.	45-Elec Engr

NAG 5-17 Howard University 2206
Two photon excitation as a tool for atmospheric and kinetic investigation

<i>Period</i>	<i>Obligations</i>	
03/01/80-04/30/83	FY82: \$39,000	TOTAL: \$145,958
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Halpern, J. B.	GSFC/Miller, G. E.	13-Physics

NSG 1555 George Washington University 2199
Studies of radiative transfer in the Earth's atmosphere with emphasis on the inference of the radiation budget

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/31/83	FY82:	TOTAL: \$64,931
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Smith, G. L.	31-Atmos Sci
Barkstrom, B. R.	LARC/Suttles, J. T.	

NAG 5-25 Howard University 2207
Dynamic characteristics of linear hydrostatic gas bearings

<i>Period</i>	<i>Obligations</i>	
04/01/80-07/31/82	FY82:	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Watkins, C. B.	GSFC/Cygnarowicz, T. A.	46-Mech Engr
Eronini, I. E.	GSFC/Sherman, A.	

NSG 1585 George Washington University 2200
Research program in laminar flow control

<i>Period</i>	<i>Obligations</i>	
11/15/78-11/14/82	FY82: \$65,665	TOTAL: \$273,447
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liebowitz, H.	LARC/Harvey, W. D.	41-Aero Engr
Pfenninger, W.	LARC/Wagner, R. D.	

NAG 5-65 Howard University 2208
Cometary observations with the International Ultraviolet Explorer

<i>Period</i>	<i>Obligations</i>	
06/01/80-06/30/81	FY82:	TOTAL: \$7,230
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jackson, W. M.	GSFC/Boggess, A.	11-Astronomy
Delsemme, A. H.		
Donn, B. D.		

NSG 5109 George Washington University 2201
Decoding and performance of error correcting codes

<i>Period</i>	<i>Obligations</i>	
07/16/76-10/31/83	FY82: \$41,793	TOTAL: \$238,986
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Helgert, H. J.	GSFC/Morakis, J. C.	49-Engr, NEC
	GSFC/Miller, W. H.	

NAG 5-79 Howard University 2209
Research relative to optical constants and properties of material in the extreme ultraviolet

<i>Period</i>	<i>Obligations</i>	
06/15/80-12/31/82	FY82:	TOTAL: \$66,248
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Catchings, R. M.	GSFC/Osantowski, J. F.	13-Physics
	GSFC/Mangus, J. D.	

NAG 1-130 Howard University 2202
Integration of very high frequency omni range station/distance measuring equipment

<i>Period</i>	<i>Obligations</i>	
12/01/80-11/30/83	FY82:	TOTAL: \$20,532
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Choudhury, A. K.	LARC/Taylor, L. W.	41-Aero Engr

NAG 5-156 Howard University 2210
Real-type observations of X-ray diffraction patterns

<i>Period</i>	<i>Obligations</i>	
07/01/81-08/31/83	FY82: \$13,625	TOTAL: \$43,625
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tsang, T.	GSFC/Yin, L. I.	13-Physics

NAG 1-290 Howard University 2203
Megamechanics research consortium

<i>Period</i>	<i>Obligations</i>	
07/12/82-07/11/83	FY82: \$149,692	TOTAL: \$149,692
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Broome, T. H., Jr.	LARC/Housner, J. M.	49-Engr, NEC

NAG 5-180 Howard University 2211
Development of short gate microwave devices

<i>Period</i>	<i>Obligations</i>	
05/15/81-05/14/82	FY82:	TOTAL: \$90,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harris, G. L.	GSFC/Alcorn, G. E.	45-Elec Engr
Spencer, M.	GSFC/Jackson, J. W.	

NAG 2-76 Howard University 2204
Far infrared observations of extragalactic molecular clouds

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/83	FY82: \$8,004	TOTAL: \$17,663
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Richard, L. J.	ARC/Haughney, L. C.	11-Astronomy

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NAG 5-204 **Howard University** **2212**
Investigation of mechanisms by which laser dye lifetimes may
be extended
Period *Obligations*
08/15/81-10/14/83 FY82: \$49,942 TOTAL: \$98,137
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nicholson, J. M. GSFC/Dickens, P. L. 12-Chemistry
GSFC/Caudill, L. O.

NAG 5-224 **Howard University** **2213**
Snow cover snowmelt and runoff in the Himalogan River basins
Period *Obligations*
03/15/82-03/14/83 FY82: \$70,800 TOTAL: \$70,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Day, B. GSFC/Rango, A. 39-Env Sci, NEC
GSFC/Foster, J.

NAG 5-246 **Howard University** **2214**
Communications and gigabet logic systems at millimeter wave
frequencies
Period *Obligations*
08/15/82-08/14/83 FY82: \$300,000 TOTAL: \$300,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harris, G. L. GSFC/Alcorn, G. E. 44-Civil Engr
Spencer, M.

NAG 8-371 **Howard University** **2215**
X-ray observations of runaway stars
Period *Obligations*
08/15/80-11/15/81 FY82: TOTAL: \$5,737
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kumar, C. K. MSFC/Stone, J. F. 11-Astronomy

NAG 8-395 **Howard University** **2216**
X-ray observations of SA galaxies
Period *Obligations*
07/01/81-06/30/82 FY82: TOTAL: \$6,068
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kumar, C. K. MSFC/Stone, J. F. 11-Astronomy

NAG10-2 **Howard University** **2217**
Feasibility study of using field effect transistor to measure
electrical field strength
Period *Obligations*
05/15/80-05/14/81 FY82: TOTAL: \$27,566
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, Y. C. KSC/Riser, W. T. 59-Life Sci, NEC

NAS 5-23799 **Howard University** **2218**
Quality assurance system in clinical practice settings
Period *Obligations*
12/07/76-11/30/82 FY82: TOTAL: \$142,791
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, P. GSFC/Alterescu, S. 56-Medical Sciences

NAS 5-24242 **Howard University** **2219**
Study of aerodynamics for sounding rockets
Period *Obligations*
07/01/77-09/01/82 FY82: TOTAL: \$162,561
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fan, D. GSFC/Barrowman, J. S. 41-Aero Engr
GSFC/Mayo, E. E.

NAS 5-25185 **Howard University** **2220**
Study of tektites and other space related glasses
Period *Obligations*
08/17/78-05/31/83 FY82: TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thorpe, A. M. GSFC/Okeefe, J. A. 39-Env Sci, NEC
GSFC/Alterescu, S.

NAS 5-26019 **Howard University** **2221**
Microwave circuit design
Period *Obligations*
02/01/80-02/01/81 FY82: TOTAL: \$63,321
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chowdhary, R. GSFC/Santarpia, D. E. 45-Elec Engr
GSFC/Chrissotimos, N. G.

NAS 5-26531 **Howard University** **2222**
Microwave circuit design
Period *Obligations*
04/15/81-07/30/82 FY82: TOTAL: \$73,949
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chowdhary, R. GSFC/Chrissotimos, N. G. 45-Elec Engr

NCA 5-29 **Howard University** **2223**
Goddard introduction to engineering careers
Period *Obligations*
06/01/78-07/15/83 FY82: \$14,890 TOTAL: \$60,510
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cox, E. L. GSFC/Mundy, J. R. 49-Engr, NEC
GSFC/Chapman, J. W.

NCA 5-91 **Howard University** **2224**
Prefreshmen and cooperative education program
Period *Obligations*
06/01/78-06/30/81 FY82: TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cox, E. L. GSFC/Chapman, J. W. 49-Engr, NEC

NGT 09-011-060 **Howard University** **2225**
Summer faculty fellowship program in research
Period *Obligations*
01/01/78-06/30/83 FY82: \$245,253 TOTAL: \$574,858
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fan, D. N. HQ-LB/Carter, C. H. 99-Multi-Discip

NGT 09-011-080 **Howard University** **2226**
Graduate assistant program in science and engineering
Period *Obligations*
09/15/80-09/14/81 FY82: TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gill, T. L. GSFC/Mundy, J. R. 49-Engr, NEC
HQ-LC/Pohly, J. G.

**NASA'S UNIVERSITY PROGRAM
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NGT 09-011-800 **Howard University** **2227**
Graduate student researchers program
Period *Obligations*
08/03/81-08/02/83 FY82: \$8,000 TOTAL: \$16,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jackson, W. HQ-LB/Carter, C. H. 11-Astronomy

NGT 09-011-801 **Howard University** **2228**
Graduate student researchers program
Period *Obligations*
08/19/81-08/18/83 FY82: \$8,000 TOTAL: \$16,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Deloatch, E. M. HQ-LB/Carter, C. H. 45-Elec Engr

NSG 1414 **Howard University** **2229**
The dynamics and control of large flexible space structures
Period *Obligations*
05/16/77-05/15/83 FY82: \$80,164 TOTAL: \$365,820
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bainum, P. M. LARC/Hammer, H. A. 49-Engr, NEC
Kumar, V. K.
Reddy, A. S.

NSG 5071 **Howard University** **2230**
Laser induced photoluminescence studies of primary photochemical production processes of cometary radicals
Period *Obligations*
08/01/75-03/31/83 FY82: \$65,000 TOTAL: \$426,625
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jackson, W. M. HQ-EL/Brinton, H. C. 12-Chemistry
HQ-EL/Brunk, W. E.

NSG 5158 **Howard University** **2231**
Research of microwave semiconductor devices
Period *Obligations*
02/01/77-06/14/82 FY82: TOTAL: \$769,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harris, G. L. GSFC/Alcorn, G. E. 13-Physics
Spencer, M.
Chowdhary, R.

NSG 5268 **Howard University** **2232**
Characterization of low intensity X-ray imaging devices
Period *Obligations*
04/15/78-12/31/81 FY82: TOTAL: \$66,923
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ferguson, G. A. GSFC/Yin, L. I. 56-Medical Sciences

NAG 5-75 **University of District of Columbia** **2233**
Research on the causes of the temporal changes in the Earth's albedo
Period *Obligations*
06/01/80-08/31/81 FY82: TOTAL: \$32,138
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dhuria, H. GSFC/Curran, R. J. 31-Atmos Sci
GSFC/King, M. D.

NAG 5-91 **University of District of Columbia** **2234**
Data management and language enhancement for generalized set theory computer
Period *Obligations*
08/01/80-12/14/82 FY82: \$62,724 TOTAL: \$111,410
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Finley, G. T. GSFC/Purves, L. R. 22-Computer Science

NASW 3689 **University of District of Columbia** **2235**
Program in engineering, math, and computer science for academically talented 9th grade students
Period *Obligations*
09/15/82-12/31/82 FY82: \$25,123 TOTAL: \$25,123
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Darby, A. J. HQ-U/Warren, L. S.
Anderson, B. HQ-U/Pohly, J. 29-Math/Computer, NEC

NGR 09-050-019 **University of District of Columbia** **2236**
Determination of heavy metals in sediments and benthic species in relation to nuclear power plant operation
Period *Obligations*
02/18/74-11/30/82 FY82: TOTAL: \$226,776
Prin. Invest. *NASA Tech. Officer* *CASE Category*
PHELPS, H. L. GSFC/Gross, F. C. 39-Env Sci, NEC
GSFC/Colony, J. A.

NGR 09-053-003 **University of District of Columbia** **2237**
Investigation of problems associated with solid encapsulation of high voltage electronic assemblies
Period *Obligations*
04/15/74-12/31/82 FY82: \$48,704 TOTAL: \$278,229
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lessin, I. GSFC/Ruitberg, A. 39-Env Sci, NEC

NSG 5192 **University of District of Columbia** **2238**
Excitation cross section measurements of atmospheric interest
Period *Obligations*
08/01/77-08/31/82 FY82: TOTAL: \$211,842
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morgan, H. D. GSFC/Mentall, J. E. 13-Physics

FLORIDA

NAS 6-3040 **Embry-Riddle Aeronautical University** **2239**
Study for the evaluation of in-flight instrument flight rules procedures trainer
Period *Obligations*
10/01/79-09/30/80 FY82: TOTAL: \$23,560
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gandelman, J. GSFC/Aaron, J. B. 41-Aero Engr
WFC/Parker, L. C.

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NCC 1-66	Embry-Riddle Aeronautical University	2240			
	Cockpit display of traffic information (CDTI)				
	<i>Period</i>	<i>Obligations</i>			
	03/01/82-02/28/83	FY82: \$48,106	TOTAL: \$48,106		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Wells, D. C.	LARC/Garren, J. F., Jr.	41-Aero Engr		
		LARC/Kelley, J. R.			
NAS10-10225	Florida Institute of Technology	2247			
	A study to determine the technical specifications for an advanced wildlife tracking system				
	<i>Period</i>	<i>Obligations</i>			
	09/02/81-11/02/81	FY82:	TOTAL: \$7,943		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Nunn, W. M., Jr.	KSC/Huffman, W. O.	59-Life Sci, NEC		
NAG 2-81	Florida A&M University	2241			
	Relationship of angiotension rhythms in plasma and CNS to neurogenic hypertension				
	<i>Period</i>	<i>Obligations</i>			
	01/01/81-06/30/83	FY82: \$33,113	TOTAL: \$58,113		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Walker, C. A.	ARC/Winget, C. M.	51-Biological Sci		
		ARC/Deroshia, C. W.			
NAG 2-149	Florida State University	2248			
	Biochemical analysis of the anaerobic microbial metabolism and community structure in managed fermentation				
	<i>Period</i>	<i>Obligations</i>			
	01/01/82-12/31/82	FY82: \$68,000	TOTAL: \$68,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	White, R. C.	ARC/Wydeven, T.	51-Biological Sci		
NAS 5-25165	Florida A&M University	2242			
	Medical application for computer technology				
	<i>Period</i>	<i>Obligations</i>			
	08/15/78-04/17/83	FY82:	TOTAL: \$97,317		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Fresh, F. A.	GSFC/Alterescu, S.	56-Medical Sciences		
NAG 3-182	Florida State University	2249			
	Shock associated noise of supersonic jets from convergent-divergent nozzles				
	<i>Period</i>	<i>Obligations</i>			
	08/01/81-02/28/84	FY82: \$50,439	TOTAL: \$100,620		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Tam, C. K.	LERC/Stone, J. R.	41-Aero Engr		
NAG 5-6	Florida State University	2250			
	Investigation of microwave radiometer data in global numerical weather prediction				
	<i>Period</i>	<i>Obligations</i>			
	02/01/80-05/31/82	FY82:	TOTAL: \$128,966		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Krishnamurti, T. N.	GSFC/Suskind, J.	31-Atmos Sci		
NAG 5-219	Florida State University	2251			
	Coupled ice-ocean dynamics in the marginal ice zone				
	<i>Period</i>	<i>Obligations</i>			
	04/01/82-03/31/83	FY82: \$140,614	TOTAL: \$140,614		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	O'Brien, J. J.	GSFC/Rao, D. B.	33-Oceanography		
NAGW 221	Florida State University	2252			
	Some aspects of southern oscillation dynamics				
	<i>Period</i>	<i>Obligations</i>			
	09/01/81-08/31/82	FY82:	TOTAL: \$20,944		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Clark, A. J.	HQ-EB/Chase, R. P.	33-Oceanography		
		HQ-EB/Wilson, W. S.			
NAS10-10106	Florida Institute of Technology	2246			
	Improved hypersonic vapor removal systems study resulting in preliminary design				
	<i>Period</i>	<i>Obligations</i>			
	04/24/81-07/24/82	FY82:	TOTAL: \$62,695		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Thomas, J. J.	KSC/Howard, F. S.	12-Chemistry		
NASW 3522	Florida State University	2253			
	Construction of a 0.0025 cm-1 resolution Fourier transform spectrometer				
	<i>Period</i>	<i>Obligations</i>			
	02/01/81-07/01/83	FY82:	TOTAL: \$50,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Hunt, R. H.	HQ-EB/Watson, R. T.	31-Atmos Sci		
	Shelton, W. N.	HQ-EB/Chan, K. R.			

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NGR 10-004-056	Florida State University	2254
Infrared absorption from 0.8 to 1.5 microns of NH ₃ , CH ₄ and CO ₂		
<i>Period</i>	<i>Obligations</i>	
03/25/69-01/31/83	FY82: \$14,777	TOTAL: \$333,086
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hunt, R. H.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Murphy, R. E.	
NGT 10-004-800	Florida State University	2255
Graduate student training program in oceanographic remote sensing		
<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$99,900	TOTAL: \$148,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
O'Brien, J. J.	HQ-EE/Carder, K. L.	33-Oceanography
MacH, W. H.	HQ-EE/Wilson, W. S.	
NSG 7337	Florida State University	2256
Rock-inhabiting microorganisms from hot and cold deserts: Adaptations to extreme environments		
<i>Period</i>	<i>Obligations</i>	
03/15/77-03/14/83	FY82: \$99,048	TOTAL: \$480,808
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Friedmann, E. I.	HQ-EB/Devincenzi, D. L.	54-Env Biology
Friedmann, R. O.		
NSG 7473	Florida State University	2257
Laboratory determination of infrared absorption line parameters for molecules of importance in upper atmospheric research		
<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/83	FY82: \$36,200	TOTAL: \$177,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hunt, R. H.	HQ-EE/Watson, R. T.	31-Atmos Sci
	HQ-EE/Hilsenrath, E.	
NSG 7629	Florida State University	2258
Meteorology studies of Mars		
<i>Period</i>	<i>Obligations</i>	
03/01/79-10/31/82	FY82: \$27,000	TOTAL: \$138,921
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hess, S. L.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	
NAS 5-26714	Nova University	2259
Administrative support for satellite surface stress working group		
<i>Period</i>	<i>Obligations</i>	
09/18/81-12/31/83	FY82: \$47,000	TOTAL: \$89,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Witte, J. M.	GSFC/Kirk, R. G.	33-Oceanography
NASW 3351	State University System of Florida	2260
Operation of a state technology applications center (STAC)		
<i>Period</i>	<i>Obligations</i>	
03/01/80-06/30/82	FY82: \$110,000	TOTAL: \$533,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	HQ-ET/Harrison, J.	22-Computer Science
NAS 8-32835	The University of Central Florida	2261
Boundary integral fracture mechanics code		
<i>Period</i>	<i>Obligations</i>	
02/27/78-11/30/82	FY82:	TOTAL: \$24,515
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carroll, W. E.	MSFC/Bianca, C.	47-Materials Engr
	MSFC/Frederick, P. W.	
NAS10-9841	The University of Central Florida	2262
Kennedy Space Center precipitation monitoring program		
<i>Period</i>	<i>Obligations</i>	
06/15/80-10/31/81	FY82:	TOTAL: \$56,477
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Madsen, B. C.	KSC/Knott, W. B.	39-Env Sci, NEC
NAS10-9897	The University of Central Florida	2263
Study entitled, air particulate sampling		
<i>Period</i>	<i>Obligations</i>	
07/30/80-10/29/81	FY82:	TOTAL: \$22,455
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hudson, G. M.	KSC/Knott, W. M.	31-Atmos Sci
NAS10-10280	The University of Central Florida	2264
Study of OIS developed digital communications		
<i>Period</i>	<i>Obligations</i>	
10/26/81-12/27/82	FY82: \$80,483	TOTAL: \$80,483
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petrasko, B.	KSC/Byrne, F.	45-Elec Engr
NAS10-10544	The University of Central Florida	2265
Evaluate a hydrogen electrolyzer		
<i>Period</i>	<i>Obligations</i>	
09/22/82-05/21/83	FY82: \$13,344	TOTAL: \$13,344
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hancock, O. G., Jr.	KSC/Reuterskiold, G.	49-Engr, NEC
NAG 1-39	University of Florida	2266
The numerical solution of partial differential equations by the method of lines		
<i>Period</i>	<i>Obligations</i>	
02/01/80-10/31/82	FY82: \$16,008	TOTAL: \$27,883
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Edwards, B. H.	LARC/Haigler, G. W.	21-Mathematics
	LARC/Shoosmith, J. N.	
NAG 1-104	University of Florida	2267
Investigation of flow instabilities on a rotating disk with curvature in the radial direction		
<i>Period</i>	<i>Obligations</i>	
09/15/80-12/31/81	FY82:	TOTAL: \$20,266
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clarkson, M. H.	LARC/Wilkinson, S. P.	41-Aero Engr
	LARC/Bushnell, D. M.	
NAG 1-135	University of Florida	2268
Research on solar-pumped liquid lasers		
<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$84,871	TOTAL: \$169,498
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schneider, R. T.	LARC/Deyoung, R. J.	13-Physics
Karzweg, U. H.	LARC/Conway, E. J.	

**NASA'S UNIVERSITY PROGRAM
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NAG 1-154	University of Florida	2269	NAG10-4	University of Florida	2277
Ohmic contacts, irradiation effects and thin film growth			Design/test of an online biomedical computer library		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/81-04/15/83	FY82: \$27,998	TOTAL: \$65,796	03/17/81-06/16/82	FY82:	TOTAL: \$21,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holloway, P. H.	LARC/Outlaw, R. A.	47-Materials Engr	Grimes, R. R.	KSC/Buchanan, P.	56-Medical Sciences
	LARC/Conway, E. J.				
NAG 1-178	University of Florida	2270	NAS 2-9976	University of Florida	2278
Identification and properties of molecular systems of potential use in solar-pumped lasers			Experiment implementation of a lightning and radio emission detector		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/81-08/31/83	FY82: \$49,976	TOTAL: \$150,718	05/31/78-09/30/85	FY82:	TOTAL: \$65,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ohrn, N. Y.	LARC/Meador, W. E.	13-Physics	Lanzerotti, L. J.	ARC/Wilhelmi, A. J.	31-Atmos Sci
Micha, D. A.	LARC/Conway, E. J.		Uman, M. A.	ARC/Tischler, E. T.	
NAG 1-245	University of Florida	2271	NAS 2-11007	University of Florida	2279
Sabbatical program in low-speed aerodynamics			Pioneer 10/11 imaging photopolarimeter (IPP) experiment observations of background starlight		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/82-05/31/83	FY82: \$36,701	TOTAL: \$36,701	05/18/81-11/30/82	FY82:	TOTAL: \$38,432
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fearn, R. L.	LARC/Margason, R. J.	41-Aero Engr	Weinberg, J. L.	ARC/Fimmel, R. O.	11-Astronomy
				ARC/Prevost, F.	
NAG 2-46	University of Florida	2272	NAS 5-22908	University of Florida	2280
Studies in the accuracy of relative measurements			Nimbus-G experiment team for solar back-scattered ultraviolet and total ozone mapping system		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/15/80-01/14/82	FY82:	TOTAL: \$20,000	12/19/75-12/31/81	FY82: \$5,000	TOTAL: \$257,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eichhorn, H. K.	ARC/Black, D. C.	11-Astronomy	Green, A. E.	GSFC/Nelsen, E. D.	49-Engr, NEC
NAG 5-110	University of Florida	2273	NAS 5-26383	University of Florida	2281
Observation of the Lyman alpha line during primary eclipse of Beta Persie			A shuttle Spacelab induced atmosphere experiment		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/80-03/31/82	FY82:	TOTAL: \$4,355	11/04/80-04/30/83	FY82: \$66,000	TOTAL: \$249,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wood, F. B.	GSFC/Corrigan, J. P.	11-Astronomy	Weinberg, J. L.	GSFC/Eiband, A. M.	11-Astronomy
NAGW 126	University of Florida	2274	NAS 5-26453	University of Florida	2282
Interplanetary dust: Optical and physical properties and dynamics			Heat capacity mapping mission (HCMM) data investigation: Use of thermal inertia temperature measurements predict nocturnal cold prone areas in Florida		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/82	FY82: \$42,947	TOTAL: \$91,483	03/16/81-03/15/83	FY82:	TOTAL: \$42,504
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	HQ-EL/Brinton, H. C.	31-Atmos Sci	Allen, L. H.	GSFC/Oseroff, H.	31-Atmos Sci
			Chen, E. Y.		
			Martsoff, J. D.		
NAGW 196	University of Florida	2275	NASW 3578	University of Florida	2283
Analysis of Voyager radio data from Jupiter and Saturn			Halley optical probe experiment		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
05/01/81-05/31/82	FY82:	TOTAL: \$40,000	03/01/82-09/30/86	FY82: \$190,000	TOTAL: \$190,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carr, T. D.	HQ-EL/Brunk, W. E.	11-Astronomy	Weinberg, J. L.	HQ-EL/Brunk, W. E.	11-Astronomy
				HQ-EL/Brinton, H. C.	
NAGW 320	University of Florida	2276			
Analysis of Voyager radio data from Jupiter and Saturn					
<i>Period</i>	<i>Obligations</i>				
06/01/82-05/31/83	FY82: \$40,000	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Carr, T. D.	HQ-EL/Brunk, W. E.	31-Atmos Sci			
Lebo, G. R.	HQ-EL/Brinton, H. C.				

**NASA'S UNIVERSITY PROGRAM
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NAS10-9666 University of Florida 2284
Color infrared applications to citiculture

<i>Period</i>	<i>Obligations</i>	
07/19/79-01/18/81	FY82: TOTAL: \$38,520	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blazquez, C. H.	KSC/Horn, F. W.	39-Env Sci, NEC
	KSC/Barnett, U. R.	

NCC 2-133 University of Florida 2291
The evaluation of a jet/aerodynamic surface interference model

<i>Period</i>	<i>Obligations</i>	
08/15/81-05/14/83	FY82: \$11,419 TOTAL: \$37,794	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fearn, R. F.	ARC/Koenig, D. G.	41-Aero Engr
	Furlong, K. L.	

NAS10-9876 University of Florida 2285
Study entitled application of satellite freeze forecast technology to other parts of the U.S.

<i>Period</i>	<i>Obligations</i>	
07/10/80-07/09/81	FY82: TOTAL: \$49,783	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martsof, J. D.	KSC/Horn, F. W.	31-Atmos Sci

NGL 10-005-008 University of Florida 2292
Theoretical atmospheric physics

<i>Period</i>	<i>Obligations</i>	
06/04/64-12/31/81	FY82: TOTAL: \$666,460	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Green, A. S.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAS10-9892 University of Florida 2286
Study entitled satellite freeze forecast system

<i>Period</i>	<i>Obligations</i>	
07/31/80-03/31/83	FY82: \$123,838 TOTAL: \$322,638	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martsof, J. D.	KSC/Withrow, R.	31-Atmos Sci

NGR 10-005-169 University of Florida 2293
Lightning studies

<i>Period</i>	<i>Obligations</i>	
01/15/73-04/13/82	FY82: TOTAL: \$93,455	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Uman, M. A.	KSC/Dietz, W. R.	31-Atmos Sci

NAS10-10390 University of Florida 2287
Characterization and evaluation of acid rain at a site remote from KSC

<i>Period</i>	<i>Obligations</i>	
04/15/82-04/14/83	FY82: \$1,848 TOTAL: \$1,848	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Madsen, B. C.	KSC/Knott, W. M.	39-Env Sci, NEC

NGT 10-005-800 University of Florida 2294
A separated flow study

<i>Period</i>	<i>Obligations</i>	
09/01/80-12/31/82	FY82: TOTAL: \$19,695	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clarkson, M.	HQ-LB/Carter, C. H.	41-Aero Engr

NAS13-167 University of Florida 2288
Developing and teaching short courses in state of the art remote sensing techniques

<i>Period</i>	<i>Obligations</i>	
11/24/80-11/23/81	FY82: TOTAL: \$16,990	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hetrick, V.	NSTL/Atwell, B. H.	32-Geological Sci
	Henry, J. A.	

NGT 10-005-801 University of Florida 2295
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-12/31/81	FY82: TOTAL: \$11,913	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fearn, R. L.	HQ-LB/Carter, C. H.	41-Aero Engr

NGT 10-005-802 University of Florida 2296
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$13,000 TOTAL: \$24,170	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tesar, D.	HQ-LB/Carter, C. H.	46-Mech Engr

NCA 2-240101 University of Florida 2289
Mechanisms of fluid intake

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$28,800 TOTAL: \$57,600	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fregly, M. J.	ARC/Greenleaf, J. E.	51-Biological Sci

NGT 10-005-803 University of Florida 2297
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/15/81-06/14/83	FY82: \$12,189 TOTAL: \$23,309	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fearn, R. L.	HQ-LB/Carter, C. H.	41-Aero Engr

NCC 2-23 University of Florida 2290
The investigation of the flow about general fuselage shapes at high angles of attack

<i>Period</i>	<i>Obligations</i>	
11/01/79-11/30/82	FY82: \$19,983 TOTAL: \$115,838	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clarkson, M. H.	ARC/Malcolm, G. N.	41-Aero Engr

NSG 2288 University of Florida 2298
A jet in a crossflow

<i>Period</i>	<i>Obligations</i>	
01/01/78-11/30/82	FY82: TOTAL: \$170,261	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fearn, R. L.	ARC/Aoyagi, K.	41-Aero Engr
	ARC/Koenig, D. G.	

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NSG 3254 **University of Florida** **2299**
Mechanisms of devitrification of grain boundary glassy phases
in silicon nitride materials
Period *Obligations*
03/26/79-09/24/82 FY82: TOTAL: \$127,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hench, L. L. LERC/Dutta, S. 47-Materials Engr

NAGW 258 **University of Miami** **2306**
Laser brittorum probe for measuring sea parameters from a
submerged vehicle
Period *Obligations*
10/01/81-09/30/83 FY82: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hirschberg, J. G. HQ-EB/Carder, K. L. 33-Oceanography
HQ-EB/Wilson, S. W.

NSG 3273 **University of Florida** **2300**
Evaluation of ion beam sputtered bioglass coatings of prosthetic
devices
Period *Obligations*
07/01/79-12/31/81 FY82: TOTAL: \$25,525
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hench, L. L. LERC/Kerlake, W. R. 56-Medical Sciences

NAGW 273 **University of Miami** **2307**
An investigation of the utility of ocean color imagery for
delineation of oceanic processes in the western North Atlantic
Period *Obligations*
11/01/81-07/31/83 FY82: \$128,757 TOTAL: \$128,757
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gordan, H. R. HQ-EB/Carder, K. L. 33-Oceanography
Brown, O. B. HQ-EB/Wilson, W. S.
Evans, R. H.

NSG 7236 **University of Florida** **2301**
Use of remote sensing in solving Florida's geological and coastal
engineering problems
Period *Obligations*
07/01/76-06/30/85 FY82: \$100,000 TOTAL: \$699,622
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ruth, B. E. HQ-EL/Uyahov, J. T. 39-Env Sci, NEC
Degner, J. D.

NAS 5-22963 **University of Miami** **2308**
Nimbus G coastal zone color scanner sensor experiment
Period *Obligations*
02/02/76-09/30/82 FY82: \$76,501 TOTAL: \$281,327
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gordon, H. R. GSFC/Oakes, A. G. 31-Atmos Sci

NAG 1-207 **University of Miami** **2302**
A hybrid two-three dimensional photochemical model of the
stratosphere and troposphere
Period *Obligations*
08/11/81-08/10/82 FY82: TOTAL: \$55,811
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gidel, L. T. LARC/Fishman, J. 31-Atmos Sci

NAS 5-26201 **University of Miami** **2309**
Investigations of medium wavelength magnetic anomalies in the
Eastern Pacific using magnetic fields monitor satellite data
Period *Obligations*
06/02/80-11/02/82 FY82: TOTAL: \$81,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harrison, C. G. GSFC/Oseroff, H. 32-Geological Sci

NAG 2-150 **University of Miami** **2303**
Muscle fiber type distribution relative to muscle weakness: A
new method
Period *Obligations*
12/01/81-11/30/82 FY82: \$35,000 TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kerrick, W. G. ARC/Ellis, S. 59-Life Sci, NEC

NAS 5-26241 **University of Miami** **2310**
Evolution and behavior of major pollution episodes over
extended time and space scales
Period *Obligations*
07/14/80-12/01/80 FY82: TOTAL: \$9,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Prospero, J. M. GSFC/Fraser, R. S. 31-Atmos Sci

NAG 5-166 **University of Miami** **2304**
Two-dimensional semi-spectral model of stratospheric dynamics
and photochemistry
Period *Obligations*
05/01/81-04/30/83 FY82: \$18,538 TOTAL: \$37,045
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gidel, L. T. GSFC/Alpert, J. C. 31-Atmos Sci

NAS 5-26768 **University of Miami** **2311**
Optical thickness as related to pollutant episodes and the
concentration of visibility degrading pollutants
Period *Obligations*
11/04/81-11/03/82 FY82: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Prospero, J. M. GSFC/Fraser, R. S. 54-Env Biology

NAG 6-13 **University of Miami** **2305**
Initial investigations of sea water fluorescence absorption
properties and their relevance to oceanic lidar interpretation
Period *Obligations*
02/01/81-12/31/81 FY82: TOTAL: \$4,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zika, R. G. GSFC/Hoge, F. E. 33-Oceanography

NAS 8-33523 **University of Miami** **2312**
Modification of a computer general circulation model of the
Earth's atmosphere for the atmospheric general circulation
experiment
Period *Obligations*
04/16/80-07/31/83 FY82: \$110,000 TOTAL: \$259,459
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Silcher, E. J. MSFC/Fowles, W. W. 31-Atmos Sci
Malone, R. C. MSFC/Fichtl, G. H.

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

NAS 9-15473 **University of Miami** **2313**
Study of sodium homeostasis and renin-aldosterone during water immersion

<i>Period</i>	<i>Obligations</i>	
11/21/77-08/31/83	FY82: \$12,000	TOTAL: \$117,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Epstein, M.	JSC/Huntoon, C. L.	56-Medical Sciences

NAS10-10531 **University of Miami** **2314**
Study biological production of hydrogen

<i>Period</i>	<i>Obligations</i>	
09/28/82-03/31/83	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mitsui, A.	KSC/Knott, W.	39-Env Sci, NEC

NCA 2-438101 **University of Miami** **2315**
Interchange for use of university facilities and services to support satellite communications development

<i>Period</i>	<i>Obligations</i>	
08/01/81-10/31/82	FY82:	TOTAL: \$14,844
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brown, O.	ARC/Gibbs, B. P.	39-Env Sci, NEC

NCA 2-438201 **University of Miami** **2316**
Air traffic control conflict intensity indices work load measurement and control

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$26,000	TOTAL: \$26,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Friedman, M. F.	ARC/Tobias, L.	99-Multi-Discip

NCC 2-152 **University of Miami** **2317**
Studies of flight-deck automation

<i>Period</i>	<i>Obligations</i>	
08/15/81-10/31/82	FY82: \$92,887	TOTAL: \$104,887
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wiener, E. L.	ARC/Curry, R. E.	69-Psych, NEC

NGR 10-007-008 **University of Miami** **2318**
Research in the Institute of Molecular Evolution in the School of Environmental and Planetary Sciences

<i>Period</i>	<i>Obligations</i>	
06/09/84-10/31/82	FY82: \$74,000	TOTAL: \$2,731,040
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fox, S. W.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NSG 1283 **University of Miami** **2319**
Effects of environmental variables on the crack initiation stages of the corrosion fatigue of high strength aluminum alloys

<i>Period</i>	<i>Obligations</i>	
03/01/76-09/30/80	FY82:	TOTAL: \$108,383
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Poteat, L. E.	LARC/Lisagor, W. B.	47-Materials Engr
	LARC/Ransone, P. O.	

NSG 5342 **University of Miami** **2320**
Tropical disturbances in relation to general circulation modeling

<i>Period</i>	<i>Obligations</i>	
05/01/79-10/31/82	FY82:	TOTAL: \$237,793
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Estoque, M. A.	GSFC/Halem, M.	31-Atmos Sci

NSG 5344 **University of Miami** **2321**
Research of ocean fronts and applications to Atlantic bluefish tuna utilization and management

<i>Period</i>	<i>Obligations</i>	
04/04/79-12/31/82	FY82: \$98,091	TOTAL: \$268,243
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, F.	GSFC/Rao, D. B.	33-Oceanography
Maul, G. A.		

NAG 2-74 **University of South Florida** **2322**
Investigations on the principles of zoogeography

<i>Period</i>	<i>Obligations</i>	
09/15/80-09/30/82	FY82: \$25,191	TOTAL: \$60,242
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Briggs, J. C.	ARC/Billingham, J.	54-Env Biology

NAS 1-16844 **University of South Florida** **2323**
Fabrication and test of monitor for NH₃, NHO₃, NH₄ + and NH₃

<i>Period</i>	<i>Obligations</i>	
09/30/81-12/31/82	FY82: \$23,994	TOTAL: \$65,750
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Braman, R. S.	LARC/Hoell, J.	31-Atmos Sci

GEORGIA

NAG 3-113 **Atlanta University** **2324**
Design and implementation of a networked automated labora - tory

<i>Period</i>	<i>Obligations</i>	
10/20/80-04/18/83	FY82: \$144,256	TOTAL: \$295,237
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Owen, G. S.	LERC/Goldstein, M.	19-Phys Sci, NEC

NAG 8-9 **Atlanta University** **2325**
Axially symmetric motions of a rotating stratified fluid

<i>Period</i>	<i>Obligations</i>	
01/02/81-07/01/82	FY82:	TOTAL: \$23,467
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martin, B. J.	MSFC/Fowlis, W. W.	21-Mathematics

NSG 2143 **Clark College** **2326**
Aerosol formation and the Space Shuttle program

<i>Period</i>	<i>Obligations</i>	
04/15/76-06/30/82	FY82:	TOTAL: \$131,589
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Veluri, V. R.	ARC/Whitten, R. C.	12-Chemistry
Utley, H. B.		

NAG 2-87 **Emory University** **2327**
Effect of decreased gravity on circulation in the rat

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$38,000	TOTAL: \$73,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Popovic, V. P.	ARC/Holton, E. M.	51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
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NAS 2-10527 **Emory University** **2328**
Cardiovascular adaptation of white rats to decreased gravity of
Space Shuttle/Spacelab inflight conditions
Period *Obligations*
01/17/80-10/15/82 FY82: \$103,232 TOTAL: \$113,586
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Popovic, V. P. ARC/Gomersall, E. W. 51-Biological Sci

NAS 2-10627 **Emory University** **2329**
Maintenance of NASA primate resources and primate baseline
data
Period *Obligations*
05/01/80-04/30/83 FY82: \$146,563 TOTAL: \$411,624
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McClure, H. M. ARC/Goldsboro, J. A. 59-Life Sci, NEC
ARC/Gommersall, E. W.

NGL 11-001-009 **Emory University** **2330**
Study of cardiovascular adaptation during long-term weightless-
ness
Period *Obligations*
05/12/65-06/30/82 FY82: TOTAL: \$627,198
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Popovic, V. P. ARC/Holton, E. M. 51-Biological Sci

NSG 735 **Fort Valley State College** **2331**
Nitrogen fixation as an adjunct to wastewater purification systems
using water hyacinths
Period *Obligations*
07/17/79-07/16/81 FY82: TOTAL: \$29,923
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, N. B. NSTL/Wolverton, B. C. 39-Env Sci, NEC

NAG 1-40 **Georgia Institute of Technology** **2332**
Mean velocities and Reynolds stresses in a juncture flow
Period *Obligations*
03/31/80-01/31/83 FY82: \$41,352 TOTAL: \$101,321
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McMahon, H. M. LARC/Scheiman, J. 41-Aero Engr
Hubbart, J. E.

NAG 1-50 **Georgia Institute of Technology** **2333**
Development of an airborne laser photofragmentation
Period *Obligations*
03/01/80-02/28/83 FY82: \$320,537 TOTAL: \$726,949
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davis, D. D. LARC/Browell, E. V. 31-Atmos Sci
Bradshaw, J. D.
Rogers, M.

NAG 1-85 **Georgia Institute of Technology** **2334**
The photochemistry of tropospheric carbon-oxygen (CO) and
nitrogen-oxygen (NO)x and the impact anthropogenic emissions
Period *Obligations*
07/01/80-06/30/83 FY82: \$72,000 TOTAL: \$196,728
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chameides, W. L. LARC/Reichle, H. G. 31-Atmos Sci
LARC/Hypes, W. D.

NAG 1-133 **Georgia Institute of Technology** **2335**
Development of an analytical technique for the optimization of
jet engine inlet and duct acoustic liners
Period *Obligations*
03/01/81-04/30/82 FY82: TOTAL: \$30,712
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zinn, B. T. LARC/Lester, H. C. 41-Aero Engr
Meyer, W. L. LARC/Hardin, J. C.

NAG 1-167 **Georgia Institute of Technology** **2336**
Chromatographic analyses of sulfur and chlorine species in the
marine troposphere
Period *Obligations*
03/15/81-09/30/81 FY82: TOTAL: \$10,244
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Black, M. S. LARC/Harris, R. C. 31-Atmos Sci

NAG 2-11 **Georgia Institute of Technology** **2337**
Molten carbonate CO2 concentrator
Period *Obligations*
01/01/80-12/31/81 FY82: TOTAL: \$90,427
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Winnick, J. ARC/Quattrone, P. D. 59-Life Sci, NEC

NAG 2-123 **Georgia Institute of Technology** **2338**
Pilot interaction with automated airborne decision making
systems
Period *Obligations*
08/21/81-10/31/82 FY82: \$116,262 TOTAL: \$146,262
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rouse, W. B. ARC/Palmer, E. A. 49-Engr, NEC

NAG 2-135 **Georgia Institute of Technology** **2339**
Development and evaluation of heat/impact resistant fabrics for
the NASA TMG garment
Period *Obligations*
08/01/81-01/31/83 FY82: \$40,067 TOTAL: \$40,067
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Olson, L. H. ARC/Webbon, B. W. 49-Engr, NEC

NAG 2-170 **Georgia Institute of Technology** **2340**
Inorganic analysis in controlled ecological life support system
Period *Obligations*
03/01/82-02/28/83 FY82: \$63,596 TOTAL: \$63,596
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carden, J. ARC/Wydeven, T. J. 12-Chemistry

NAG 3-38 **Georgia Institute of Technology** **2341**
Finite strain creep and creep crack growth analysis
Period *Obligations*
06/01/80-10/31/82 FY82: TOTAL: \$99,983
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Atturi, S. N. LERC/Gross, B. 46-Mech Engr
Oliver, P. R. LERC/Srawley, J. E.

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NAG 3-67 Georgia Institute of Technology 2342
Prediction of sound radiation from different practical jet engine inlets

<i>Period</i>	<i>Obligations</i>	
06/02/80-07/31/82	FY82: TOTAL: \$100,436	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zinn, B. T.	LERC/Saule, A. V.	41-Aero Engr
Meyer, W. L.	LERC/Rice, E. J.	

NAS 1-15370 Georgia Institute of Technology 2349
Holographic data storage crystals experiment for the long duration exposure facility (LDEF)

<i>Period</i>	<i>Obligations</i>	
04/21/78-03/31/84	FY82: \$6,970 TOTAL: \$31,808	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gaylord, T. K.	LARC/O'neal, R. L.	45-Elec Engr
Callen, W. R.	LARC/Clark, L. G.	

NAG 3-77 Georgia Institute of Technology 2343
Surface temperatures and glassy state investigations in tribiology

<i>Period</i>	<i>Obligations</i>	
07/01/80-10/30/81	FY82: TOTAL: \$40,029	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winer, W. O.	LERC/Jones, W. R.	46-Mech Engr
Bair, S.		

NAS 1-16356 Georgia Institute of Technology 2350
Science support for Earth Radiation Budget Satellite (ERBS)/stratospheric aerosol and gas experiment (SAGE)

<i>Period</i>	<i>Obligations</i>	
08/07/80-08/06/85	FY82: \$80,000 TOTAL: \$138,738	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grams, G. W.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

NAG 3-96 Georgia Institute of Technology 2344
Development of a spinning wave heat engine

<i>Period</i>	<i>Obligations</i>	
09/08/80-03/07/82	FY82: TOTAL: \$50,498	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zinn, B. T.	LERC/Phillips, B. R.	41-Aero Engr
Powell, E. A.		

NAS 1-16357 Georgia Institute of Technology 2351
Science support for Earth Radiation Budget Satellite (ERBS)/stratospheric aerosol and gas experiment (SAGE)

<i>Period</i>	<i>Obligations</i>	
08/07/80-08/06/85	FY82: \$46,000 TOTAL: \$84,528	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

NAG 3-195 Georgia Institute of Technology 2345
Assistance in preparation of project paper on demonstration of renewable energy resources in Egypt

<i>Period</i>	<i>Obligations</i>	
06/16/81-10/15/81	FY82: TOTAL: \$39,677	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Combes, R. S.	LERC/Bozek, J. M.	31-Atmos Sci
Clark, J. L.	LERC/Scudder, L. R.	
Gibson, N. S.		

NAS 1-16617 Georgia Institute of Technology 2352
Helicopter rotor loads using a matched asymptotic expansion technique study

<i>Period</i>	<i>Obligations</i>	
09/21/81-12/31/82	FY82: TOTAL: \$20,331	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pierce, G. A.	LARC/Berry, J. D.	41-Aero Engr

NAG 3-255 Georgia Institute of Technology 2346
Effects of implantation on the high-temperature corrosion and hydrogen permeability of Fe-Ni-Cr and Ni-Cr-Al alloys

<i>Period</i>	<i>Obligations</i>	
02/05/82-02/04/83	FY82: \$29,536 TOTAL: \$29,536	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ribarsky, M. W.	LERC/Benford, S. M.	47-Materials Engr

NAS 1-16645 Georgia Institute of Technology 2353
Summer technological institute

<i>Period</i>	<i>Obligations</i>	
09/30/81-09/29/82	FY82: TOTAL: \$65,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sayle, W. E.	LARC/Lee, R. B.	99-Multi-Discip

NAG 3-282 Georgia Institute of Technology 2347
Infrared technology for satellite power conversion

<i>Period</i>	<i>Obligations</i>	
04/27/82-04/26/83	FY82: \$78,377 TOTAL: \$78,377	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gallagher, J. J.	LERC/Krawczonek, W. M.	45-Elec Engr
Blue, M. D.		

NAS 1-17141 Georgia Institute of Technology 2354
Summer technology institute

<i>Period</i>	<i>Obligations</i>	
09/23/82-09/22/83	FY82: \$60,000 TOTAL: \$60,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Freeston, D. W.	LARC/Lee, R. B.	99-Multi-Discip

NAS 1-14654 Georgia Institute of Technology 2348
Investigation of the effects of long duration exposure on active optical system components

<i>Period</i>	<i>Obligations</i>	
10/14/76-10/14/82	FY82: \$6,423 TOTAL: \$204,246	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blue, M. D.	LARC/Clark, L. G.	45-Elec Engr
Gallagher, J. J.	LARC/Battista, J. D.	
Shackelford, R. G.		

NAS 1-17150 Georgia Institute of Technology 2355
Ozone transport in the lower stratosphere and the ozone-NO2 relationship

<i>Period</i>	<i>Obligations</i>	
09/20/82-09/19/83	FY82: \$40,000 TOTAL: \$40,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

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NAS 5-25817 Georgia Institute of Technology 2356
Study of Nimbus-7 applications investigation from priority 1 listing

<i>Period</i>	<i>Obligations</i>	
08/20/79-12/31/82	FY82: TOTAL: \$71,833	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	GSFC/Szajna, E. F.	39-Env Sci, NEC

NAS 8-33438 Georgia Institute of Technology 2364
Quantitative analysis of metallurgical specimens

<i>Period</i>	<i>Obligations</i>	
06/04/79-09/30/83	FY82: \$10,250 TOTAL: \$26,218	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brown, J. L.	MSFC/Johnston, M. H.	47-Materials Engr
	MSFC/Parr, R. A.	

NAS 5-26220 Georgia Institute of Technology 2357
Advanced microwave moisture sounder (AMMS) rain mapping radiometers (RMR) August 1980 B-57 mission

<i>Period</i>	<i>Obligations</i>	
07/08/80-01/31/81	FY82: TOTAL: \$70,671	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gagliano, J. A.	GSFC/King, L. J.	45-Elec Engr

NAS 8-33800 Georgia Institute of Technology 2365
Ice/frost detection using millimeter wave radiometry

<i>Period</i>	<i>Obligations</i>	
05/28/80-10/31/81	FY82: TOTAL: \$137,286	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gagliano, J. A.	MSFC/Gleason, E. H.	45-Elec Engr
	MSFC/Bachtel, F. D.	

NAS 5-26304 Georgia Institute of Technology 2358
The prediction of the dynamical impact of changes in stratosphere ozone: Phase 1 (UARS)

<i>Period</i>	<i>Obligations</i>	
10/01/80-03/31/82	FY82: TOTAL: \$20,417	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	GSFC/Reber, C. A.	31-Atmos Sci

NAS 8-34543 Georgia Institute of Technology 2366
Ka-band monopulse antenna

<i>Period</i>	<i>Obligations</i>	
07/22/81-03/31/82	FY82: TOTAL: \$16,600	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kozakoff, D. J.	MSFC/Gleason, E. H.	45-Elec Engr
Newton, J. M.	MSFC/Stone, D.	

NAS 5-26528 Georgia Institute of Technology 2359
Advanced microwave moisture sounder (AMMS) May/June 1981 WB-57 cope mission

<i>Period</i>	<i>Obligations</i>	
04/03/81-03/31/82	FY82: \$1,200 TOTAL: \$65,089	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gagliano, J. A.	GSFC/King, L. J.	45-Elec Engr

NAS 8-35048 Georgia Institute of Technology 2367
Ion implantation and plating to improve surface hardness and wear characteristics of 440 stainless steel for bearing application

<i>Period</i>	<i>Obligations</i>	
09/22/82-09/21/83	FY82: \$134,964 TOTAL: \$134,964	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Erenga, H. E.	MSFC/Whitaker, A. F.	13-Physics

NAS 5-26586 Georgia Institute of Technology 2360
Storm hazards 81 program

<i>Period</i>	<i>Obligations</i>	
05/07/81-04/04/82	FY82: TOTAL: \$25,673	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, B. J.	GSFC/Levine, D. M.	31-Atmos Sci

NAS 9-16353 Georgia Institute of Technology 2368
Measurement of RF attenuation of CV102 flight thermal protection system (TPS) over antenna subsystem

<i>Period</i>	<i>Obligations</i>	
05/01/81-01/01/83	FY82: TOTAL: \$99,996	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cooke, W. P.	JSC/Eggers, D. S.	45-Elec Engr

NAS 5-27257 Georgia Institute of Technology 2361
Engineering support for GSFC storm hazards-82

<i>Period</i>	<i>Obligations</i>	
05/07/82-05/07/83	FY82: \$30,985 TOTAL: \$30,985	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, B. J.	GSFC/Levine, D. M.	41-Aero Engr

NCA 2-260101 Georgia Institute of Technology 2369
Digital signal processing for cardiovascular physiological monitoring applications

<i>Period</i>	<i>Obligations</i>	
08/01/81-10/31/82	FY82: \$14,950 TOTAL: \$14,950	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Perry, K. R.	ARC/Hines, J. W., Jr.	51-Biological Sci
	ARC/Sandler, H.	

NAS 5-27284 Georgia Institute of Technology 2362
The prediction of the dynamical impact of changes in stratospheric ozone

<i>Period</i>	<i>Obligations</i>	
07/01/82-12/31/82	FY82: \$8,070 TOTAL: \$8,070	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	GSFC/Donley, J.	31-Atmos Sci

NCA 2-260102 Georgia Institute of Technology 2370
Qualitative elemental analysis of high pressure liquid chromatography peaks by induced coupled element separation: An interfacing study

<i>Period</i>	<i>Obligations</i>	
06/23/81-05/31/82	FY82: TOTAL: \$8,017	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carden, J. L.	ARC/MacElroy, R. D.	12-Chemistry
Browner, R.	ARC/Wydeven, T., Jr.	

NAS 5-27385 Georgia Institute of Technology 2363
Modification, installation, operation, and maintenance of the advanced microwave moisture sounder

<i>Period</i>	<i>Obligations</i>	
09/24/82-07/23/83	FY82: \$5,000 TOTAL: \$5,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	GSFC/Dod, L. R.	45-Elec Engr

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NCC 2-9 Georgia Institute of Technology 2371
Three-dimensional simulation of the Jovian circulation
Period *Obligations*
07/01/79-10/31/81 FY82: TOTAL: \$25,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alyea, F. N. ARC/Young, R. E. 31-Atmos Sci

NSG 2323 Georgia Institute of Technology 2378
Chronology integration analyses for closed life support systems applicable to space habitats
Period *Obligations*
06/01/78-03/31/81 FY82: TOTAL: \$309,654
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carden, J. L. ARC/Quattrone, P. D. 59-Life Sci, NEC
Roper, D.

NCC 2-119 Georgia Institute of Technology 2372
Engineering design and fabrication of a prototype state-of-the-art space suit
Period *Obligations*
02/15/81-02/14/83 FY82: \$8,843 TOTAL: \$166,060
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Olson, L. H. ARC/Vykukal, H. C. 49-Engr, NEC

NSG 2356 Georgia Institute of Technology 2379
Development of molded, coated fabric joints
Period *Obligations*
12/01/78-01/31/83 FY82: \$48,440 TOTAL: \$196,748
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Olson, L. H. ARC/Vykukal, H. C. 49-Engr, NEC

NCC 2-182 Georgia Institute of Technology 2373
Development optical interference filters for the wavelength 28um to 160um
Period *Obligations*
04/01/82-11/30/82 FY82: \$12,000 TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holah, G. ARC/Goebel, J. H. 19-Phys Sci, NEC
ARC/Kittel, P.

NSG 2363 Georgia Institute of Technology 2380
In-situ measurements of optical properties of stratospheric aerosols using NASA U-2 aircraft
Period *Obligations*
02/01/79-11/30/82 FY82: \$42,484 TOTAL: \$198,605
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grams, G. W. ARC/Margozzi, A. P. 31-Atmos Sci

NCC 3-14 Georgia Institute of Technology 2374
Interdisciplinary collaboration in tribology
Period *Obligations*
05/19/80-08/22/83 FY82: \$50,000 TOTAL: \$140,366
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Winer, W. O. LERC/Jones, W. R. 46-Mech Engr
Ramalingam, S. LERC/Wedeven, L. D.

NSG 3036 Georgia Institute of Technology 2381
Acoustic properties of turbofan inlets
Period *Obligations*
09/01/74-12/15/81 FY82: \$4,000 TOTAL: \$138,633
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zinn, B. T. LERC/Baumeister, K. J. 41-Aero Engr

NSG 1493 Georgia Institute of Technology 2375
Science support for solar occultation experiments with the Nimbus-G/SAM II and AEM-B/SAGE spacecraft sensors
Period *Obligations*
01/16/78-02/28/83 FY82: \$29,980 TOTAL: \$275,354
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grams, G. W. LARC/McMaster, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NSG 3260 Georgia Institute of Technology 2382
A viscous-inviscid interactive procedure for rotational flow in cascades of two-dimensional airfoils of arbitrary shape
Period *Obligations*
03/15/79-08/12/82 FY82: TOTAL: \$78,036
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnston, W. A. LERC/Sockol, P. M. 41-Aero Engr

NSG 1592 Georgia Institute of Technology 2376
Analysis and design of pendulum vibration absorbers for helicopters
Period *Obligations*
01/15/79-04/14/81 FY82: TOTAL: \$93,758
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pierce, G. A. LARC/Lee, B. L. 41-Aero Engr
LARC/Hammond, C. E.

NSG 3307 Georgia Institute of Technology 2383
A new numerical approach for compressible viscous flows
Period *Obligations*
09/10/79-12/08/81 FY82: TOTAL: \$98,674
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, J. LERC/McFarland, E. R. 41-Aero Engr
Lekoudis, S. LERC/Sockol, P. M.

NSG 1643 Georgia Institute of Technology 2377
Ozone transport in the lower stratosphere and the ozone-NO2 relationship
Period *Obligations*
08/01/79-12/31/82 FY82: TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cunnold, D. M. LARC/Master, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NSG 5012 Georgia Institute of Technology 2384
Research in millimeter wave techniques
Period *Obligations*
06/15/74-01/31/83 FY82: \$60,000 TOTAL: \$756,434
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Forsythe, R. E. GSFC/King, J. L. 45-Elec Engr
GSFC/Shiue, J. C.

**NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)**

NAG 5-242	Georgia State University	2385			
Satellite observations of selected astronomical objects and quasars					
<i>Period</i>	<i>Obligations</i>				
07/01/82-06/30/83	FY82: \$5,300	TOTAL: \$5,300			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Miller, H. R.	GSFC/Kondo, Y.	11-Astronomy			
NAG 8-3	Morehouse College	2386			
Numerical differentiation and interpolation procedure with error estimates for non-exact data					
<i>Period</i>	<i>Obligations</i>				
02/15/80-09/14/82	FY82:	TOTAL: \$26,057			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bozeman, R. E.	MSFC/Campbell, W.	21-Mathematics			
NAGW 259	Morehouse College	2387			
Research on the matrix-isolation infrared and laser-raman study of molecular structure of chlorine nitrates					
<i>Period</i>	<i>Obligations</i>				
10/01/81-09/30/82	FY82: \$50,000	TOTAL: \$50,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hall, J. H.	HQ-EB/Chandra, S. HQ-EB/Watson, R. T.	31-Atmos Sci			
NAS 5-23571	Morehouse College	2388			
Application of medical information management system for medical record keeping					
<i>Period</i>	<i>Obligations</i>				
06/09/76-01/08/83	FY82:	TOTAL: \$122,865			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Barreras, R. J.	GSFC/Alterescu, S. 56-Medical Sciences GSFC/Friedman, D. S.				
NSG 7652	Morehouse College	2389			
The matrix-isolation infrared-laser-raman study of the molecular structure of chlorine nitrate					
<i>Period</i>	<i>Obligations</i>				
09/30/79-09/29/81	FY82:	TOTAL: \$90,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hall, J. H.	HQ-EB/Watson, R. T. HQ-EB/Chandra, S.	12-Chemistry			
NAG 5-280	University of Georgia	2390			
Investigation of rapidly evolving short period eclipsing binaries					
<i>Period</i>	<i>Obligations</i>				
10/01/82-11/30/82	FY82: \$2,995	TOTAL: \$2,995			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Shaw, J. S. Guinan, E. F.	GSFC/Kondo, Y.	11-Astronomy			
NAS 5-26129	University of Georgia	2391			
Urban area change detection procedure with remote sensing data					
<i>Period</i>	<i>Obligations</i>				
04/23/80-12/31/81	FY82:	TOTAL: \$28,051			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Jensen, J. R.	GSFC/Toll, D.	21-Mathematics			
NASW 3247	University of Georgia	2392			
For operation of Cosmic					
<i>Period</i>	<i>Obligations</i>				
05/01/79-04/30/83	FY82: \$350,000	TOTAL: \$1,222,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brugh, R. L.	HQ-LG/Harrison, J. Q. HQ-LG/Ault, L. A.	22-Computer Science			
NAS13-157	University of Georgia	2393			
Remote sensing for state use					
<i>Period</i>	<i>Obligations</i>				
07/18/80-07/17/81	FY82:	TOTAL: \$18,217			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Welch, R.	NSTL/Atwell, B. H.	32-Geological Sci			
NAS13-190	University of Georgia	2394			
Determination of the utility of thermatic mapper simulator data for urban land use/cover classification in Georgia					
<i>Period</i>	<i>Obligations</i>				
10/22/81-10/21/82	FY82: \$18,881	TOTAL: \$18,881			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Welch, R.	NSTL/Conner, P. K.	32-Geological Sci			
NSG 7433	University of Georgia	2395			
Irradiation effects on the surface of the Moon, Mercury, asteroids, and other airless solar system bodies due to solar high energy particles and cosmic rays					
<i>Period</i>	<i>Obligations</i>				
03/01/78-09/30/81	FY82:	TOTAL: \$66,367			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Wenner, D. B.	HQ-EL/Quaide, W. L.	32-Geological Sci			
NSG 7539	University of Georgia	2396			
Comparative analysis of terrestrial and Martian labyrinth terrains					
<i>Period</i>	<i>Obligations</i>				
03/01/79-08/31/82	FY82:	TOTAL: \$50,900			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brook, G.	HQ-EL/Boyce, J. M.	32-Geological Sci			
HAWAII					
NAG 2-59	University of Hawaii - Manoa	2397			
Submillimeter observations of solar limb brightening in the solar eclipse of 31 July 1981					
<i>Period</i>	<i>Obligations</i>				
10/01/80-09/30/81	FY82:	TOTAL: \$29,067			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Becklin, E. Jefferies, J. T.	ARC/Haughney, L. C.	11-Astronomy			
NAG 2-165	University of Hawaii - Manoa	2398			
Astronomical applications for hybrid silicon charged coupled device detector arrays					
<i>Period</i>	<i>Obligations</i>				
03/01/82-12/31/82	FY82: \$39,354	TOTAL: \$39,354			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Capps, R. W.	ARC/Goebel, J. H. ARC/McCreight, C. R.	11-Astronomy			

NASA'S UNIVERSITY PROGRAM
HAWAII (Continued)

NAG 5-146 **University of Hawaii - Manoa** **2399**
Magnesium observations of a young cluster

<i>Period</i>	<i>Obligations</i>	
03/15/81-11/30/82	FY82: \$39,756	TOTAL: \$87,324
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simon, T.	GSFC/Kondo, Y.	11-Astronomy
Fekel, F. C., Jr.		
Ayres, T. R.		

NAGW 133 **University of Hawaii - Manoa** **2406**
Volatile evolution

<i>Period</i>	<i>Obligations</i>	
02/01/81-02/28/83	FY82: \$45,000	TOTAL: \$115,180
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fanale, F.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAG 8-419 **University of Hawaii - Manoa** **2400**
X-ray studies of Hertzsprung gap and related stars

<i>Period</i>	<i>Obligations</i>	
07/27/81-12/31/82	FY82:	TOTAL: \$7,125
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simon, T.	MSFC/Stone, J. F.	11-Astronomy

NAGW 136 **University of Hawaii - Manoa** **2407**
Longitudinal asymmetries on Callisto and Europa

<i>Period</i>	<i>Obligations</i>	
02/01/81-09/30/82	FY82:	TOTAL: \$10,198
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morrison, D.	HQ-EL/Boyce, J. M.	32-Geological Sci

NAG 8-436 **University of Hawaii - Manoa** **2401**
Studies of distant clusters of galaxies and the quasar 3C273

<i>Period</i>	<i>Obligations</i>	
05/17/82-05/16/83	FY82: \$14,609	TOTAL: \$14,609
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henry, J. P.	MSFC/Stone, J. F.	11-Astronomy

NAGW 153 **University of Hawaii - Manoa** **2408**
A study of the Io-associated plasma and neutral sodium cloud

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$35,000	TOTAL: \$58,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pilcher, C. B.	HQ-EL/Brinton, H. C.	13-Physics
	HQ-EL/Brunk, W. E.	

NAGW 37 **University of Hawaii - Manoa** **2402**
User support and data reduction and analysis of lunar core images

<i>Period</i>	<i>Obligations</i>	
03/01/80-05/31/83	FY82: \$16,552	TOTAL: \$70,921
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAGW 171 **University of Hawaii - Manoa** **2409**
Regolith adsorption and exchange of atmospheric constituents on Mars

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$44,000	TOTAL: \$88,086
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fanale, F.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NAGW 42 **University of Hawaii - Manoa** **2403**
Research on remote sensing and geologic studies of the lunar crust

<i>Period</i>	<i>Obligations</i>	
03/01/80-10/31/82	FY82:	TOTAL: \$110,501
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hawke, R. B.	HQ-EL/Quaide, W. L.	32-Geological Sci

NAGW 237 **University of Hawaii - Manoa** **2410**
Geologic studies of planetary volcanic and impact processes

<i>Period</i>	<i>Obligations</i>	
08/01/81-08/31/83	FY82: \$20,000	TOTAL: \$39,908
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hawke, B. R.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAGW 65 **University of Hawaii - Manoa** **2404**
A colloquium on the satellites of Jupiter

<i>Period</i>	<i>Obligations</i>	
03/01/80-03/31/82	FY82:	TOTAL: \$14,308
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cruikshank, D.	HQ-EL/Brunk, W. E.	11-Astronomy

NAGW 318 **University of Hawaii - Manoa** **2411**
Development of island stations for satellite read-out of in-site sensing of environmental properties

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$164,796	TOTAL: \$164,796
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-EE/McGoldrick, L. F.	
Wyrtki, K.	HQ-EE/Wilson, W. S.	33-Oceanography
Chave, K.		

NAGW 115 **University of Hawaii - Manoa** **2405**
Spectral properties of ice-mineral mixtures

<i>Period</i>	<i>Obligations</i>	
11/01/80-11/30/82	FY82: \$70,227	TOTAL: \$100,622
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, R. N.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAGW 348 **University of Hawaii - Manoa** **2412**
Io's surface and atmosphere

<i>Period</i>	<i>Obligations</i>	
07/21/82-07/20/83	FY82: \$63,000	TOTAL: \$63,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fanale, F.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Evans, N.	

NASA'S UNIVERSITY PROGRAM
HAWAII (Continued)

NAS 5-25181 **University of Hawaii - Manoa** **2413**
 Modifications to and operations and maintenance of the Lunar Laser Observatory at the University of Hawaii in support of various satellite missions

<i>Period</i>	<i>Obligations</i>	
08/09/78-09/30/82	FY82: \$421,000	TOTAL: \$1,928,226
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jefferies, J. T.	GSFC/Adelman, A.	11-Astronomy

NAS 5-25376 **University of Hawaii - Manoa** **2414**
 Data system test evaluation of global data sets

<i>Period</i>	<i>Obligations</i>	
01/23/79-12/22/80	FY82:	TOTAL: \$54,775
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sadler, J. C.	GSFC/Greaves, J. R.	31-Atmos Sci
	GSFC/Atlas, R.	

NAS 8-33219 **University of Hawaii - Manoa** **2415**
 The modeling of the solar upper photosphere and lower chromosphere based upon ATM data

<i>Period</i>	<i>Obligations</i>	
03/01/79-06/30/82	FY82:	TOTAL: \$65,796
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heasley, J. N.	MSFC/Deloach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	

NAS 9-16048 **University of Hawaii - Manoa** **2416**
 Life science flight experiment surface chemical bubble formation

<i>Period</i>	<i>Obligations</i>	
01/17/80-10/31/82	FY82:	TOTAL: \$15,157
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D'arriso, J. F.	JSC/Peck, E. E.	59-Life Sci, NEC

NASW 3159 **University of Hawaii - Manoa** **2417**
 Provision of support during the preparatory stage for operation of the NASA infrared telescope facility

<i>Period</i>	<i>Obligations</i>	
01/01/78-12/31/82	FY82: \$1,334,957	TOTAL: \$4,344,669
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jefferies, J. T.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NASW 3460 **University of Hawaii - Manoa** **2418**
 Construction of a data system for a charge coupled-device camera

<i>Period</i>	<i>Obligations</i>	
01/15/81-01/14/83	FY82: \$25,000	TOTAL: \$91,336
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pilcher, C. B.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Murphy, R. E.	

NASW 3566 **University of Hawaii - Manoa** **2419**
 Establishment of a planetary image center at the University of Hawaii

<i>Period</i>	<i>Obligations</i>	
11/14/81-11/15/82	FY82: \$20,085	TOTAL: \$20,085
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hawke, B. R.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NGL 12-001-011 **University of Hawaii - Manoa** **2420**
 Research in coronal and chromospheric physics

<i>Period</i>	<i>Obligations</i>	
11/16/64-11/30/82	FY82: \$165,000	TOTAL: \$4,799,365
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jefferies, J. T.	HQ-EZ/Chipman, E.	11-Astronomy

NGL 12-001-057 **University of Hawaii - Manoa** **2421**
 Research in planetary studies

<i>Period</i>	<i>Obligations</i>	
05/21/68-07/30/83	FY82: \$1,150,182	TOTAL: \$6,116,924
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jefferies, J. T.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NGR 12-001-109 **University of Hawaii - Manoa** **2422**
 N-heterocyclic compounds role in chemical evolution distribution in meteorites ancient sediments and as products of spark discharge reactions

<i>Period</i>	<i>Obligations</i>	
06/26/72-05/14/83	FY82: \$61,000	TOTAL: \$423,378
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Folsome, C. E.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NSG 5317 **University of Hawaii - Manoa** **2423**
 Ground based solar observations for the Solar Maximum Mission (SMM)

<i>Period</i>	<i>Obligations</i>	
01/15/79-02/14/82	FY82:	TOTAL: \$65,478
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jefferies, J. T.	GSFC/Wende, C.	31-Atmos Sci

NSG 7179 **University of Hawaii - Manoa** **2424**
 Crustal deformation observations

<i>Period</i>	<i>Obligations</i>	
10/20/75-02/28/83	FY82:	TOTAL: \$681,472
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Berg, E.	HQ-ER/Finley, C. J.	19-Phys Sci, NEC
Sutton, G. H.	HQ-ER/Flinn, E. A.	
Laurila, S. H.		

NSG 7312 **University of Hawaii - Manoa** **2425**
 Remote compositional mapping of the lunar surface

<i>Period</i>	<i>Obligations</i>	
02/01/77-03/31/83	FY82: \$190,000	TOTAL: \$1,296,112
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/French, B. M.	

NSG 7323 **University of Hawaii - Manoa** **2426**
 Research in planetary astronomy

<i>Period</i>	<i>Obligations</i>	
02/01/77-01/31/83	FY82: \$115,000	TOTAL: \$585,329
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCord, T. B.	HQ-EL/Brunk, W. L.	11-Astronomy
	HQ-EL/Brinton, H. C.	

**NASA'S UNIVERSITY PROGRAM
HAWAII (Continued)**

NSG 7403 University of Hawaii - Manoa 2427
Study of physical processes affecting water ice on outer solar system objects
Period *Obligations*
12/01/77-11/30/82 FY82: TOTAL: \$62,326
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pilcher, C. B. HQ-EL/Boyce, J. M. 32-Geological Sci

NSG 7462 University of Hawaii - Manoa 2428
An investigation of the mineralogy and petrology or meteorite parent bodies utilizing reflectance spectroscopy
Period *Obligations*
07/15/78-04/30/83 FY82: \$45,000 TOTAL: \$138,814
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gaffey, M. J. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NSG 7536 University of Hawaii - Manoa 2429
Research in ultraviolet spectroscopy
Period *Obligations*
11/01/78-10/31/82 FY82: \$127,861 TOTAL: \$453,661
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jefferies, J. T. HQ-EZ/Chipman, E. 13-Physics

NSG 7590 University of Hawaii - Manoa 2430
Mars surface unit definition characterization
Period *Obligations*
03/01/79-02/28/82 FY82: \$49,605 TOTAL: \$428,817
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCord, T. B. HQ-EL/Quaide, W. L. 31-Atmos Sci
HQ-EL/Boyce, J. M.

NSG 7597 University of Hawaii - Manoa 2431
Geophysics and thermal evolution of small planetary objects
Period *Obligations*
05/01/79-04/30/83 FY82: TOTAL: \$45,816
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gaffey, M. J. HQ-EL/Quaide, W. L. 32-Geological Sci

NSG 7633 University of Hawaii - Manoa 2432
Thermophysics of satellites and asteroids
Period *Obligations*
07/01/79-09/30/82 FY82: TOTAL: \$28,609
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morrison, D. HQ-EL/Boyce, J. M. 13-Physics

IDAHO

NAG 5-93 University of Idaho 2433
Pipeline processor design for communication system
Period *Obligations*
08/01/80-01/31/82 FY82: TOTAL: \$18,757
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Maki, G. K. GSFC/Miller, W. H. 29-Math/Computer, NEC

NAS 5-26534 University of Idaho 2434
Design, development, fabrication and testing of a Reed-Solomon (RS) encoder/decoder unit
Period *Obligations*
04/28/81-04/18/83 FY82: \$28,654 TOTAL: \$78,654
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Maki, G. K. GSFC/Morakis, J. C. 45-Elec Engr

NCA 2-310201 University of Idaho 2435
Training site delineation for TMS/forestry study
Period *Obligations*
08/01/82-11/30/82 FY82: \$14,238 TOTAL: \$14,238
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ulliman, J. J. ARC/Peterson, D. L. 32-Geological Sci
ARC/Brass, J. A.

ILLINOIS

NCA 2-207101 Eastern Illinois University 2436
Application of perturbed iterative scheme(PIS) to transonic flows
Period *Obligations*
12/01/80-10/31/81 FY82: TOTAL: \$5,040
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dev, S. K. ARC/Goorjian, P. M. 21-Mathematics

NAG 8-427 Elmhurst College 2437
Investigation of X-ray emission from a close binary star system due to mass transfer using HEAO-1
Period *Obligations*
01/01/82-12/31/82 FY82: \$6,985 TOTAL: \$6,985
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morrison, J. P. MSFC/Stone, J. F. 11-Astronomy
Ganea, I. M.

NAG 1-5 Illinois Institute of Technology 2438
Structural optimization with damage tolerance constraints
Period *Obligations*
11/15/79-11/14/81 FY82: TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haftka, R. T. LARC/Starnes, J. H., Jr. 41-Aero Engr

NAG 1-74 Illinois Institute of Technology 2439
Optimization of flow manipulation placement ahead of wind-tunnel contraction
Period *Obligations*
07/01/80-06/30/82 FY82: TOTAL: \$27,440
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tan-atchat, J. LARC/Scheiman, J. 41-Aero Engr
LARC/Stainback, P. C.

NAG 5-234 Illinois Institute of Technology 2440
Self-synchronizing outer codes for satellite decoders
Period *Obligations*
06/15/82-12/14/82 FY82: \$61,423 TOTAL: \$61,423
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Costello, D. J., Jr. GSFC/Miller, W. H. 45-Elec Engr
Lin, S. GSFC/Morakis, J. C.

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NSG 1266	Illinois Institute of Technology	2441			
Automated sizing of aerospace structures under multiple constraints					
<i>Period</i>		<i>Obligations</i>			
12/01/75-10/31/81	FY82:	TOTAL: \$229,010			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Haftka, R. T.	LARC/Adelman, H. M.	41-Aero Engr			
NSG 1591	Illinois Institute of Technology	2442			
Management of turbulent flow structures in boundary layers aimed at drag reduction					
<i>Period</i>		<i>Obligations</i>			
01/15/79-07/14/83	FY82: \$161,900	TOTAL: \$288,275			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nagib, H. M.	LARC/Hefner, J. N.	41-Aero Engr			
Corke, T. C.	LARC/Anders, J. B.				
NSG 3220	Illinois Institute of Technology	2443			
Management of turbulence and vorticity in contracting flows with applications to simulations of flight fan noise					
<i>Period</i>		<i>Obligations</i>			
09/15/78-08/12/82	FY82:	TOTAL: \$187,340			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nagib, H. M.	LERC/Groeneweg, J. F.	41-Aero Engr			
Tan-atchat, J.					
NSG 3220	Illinois Institute of Technology	2443			
Management of turbulence and vorticity in contracting flows with applications to simulations of flight fan noise					
<i>Period</i>		<i>Obligations</i>			
09/15/78-08/12/82	FY82:	TOTAL: \$187,340			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nagib, H. M.	LERC/Groeneweg, J. F.	41-Aero Engr			
Tan-atchat, J.					
NAGW 131	Loyola University of Chicago	2444			
Role of gravity in leaf blade form					
<i>Period</i>		<i>Obligations</i>			
01/01/80-12/31/82	FY82: \$26,481	TOTAL: \$46,556			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hayes, A. B.	HQ-EB/Halstead, T. W.	51-Biological Sci			
NAG 1-180	Northwestern University	2445			
A reappraisal of future aircraft equipment needs 1985-2000 under the changed economic regulatory and technical environment as perceived by airline operators					
<i>Period</i>		<i>Obligations</i>			
05/01/81-02/28/82	FY82: \$704	TOTAL: \$27,469			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Spencer, F. A.	LARC/Graves, E. B.	99-Multi-Discip			
NAG 1-210	Northwestern University	2446			
Mixed time intergration methods for transient thermal analysis of structures					
<i>Period</i>		<i>Obligations</i>			
10/01/81-09/30/82	FY82:	TOTAL: \$36,235			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Liu, W. K.	LARC/Olsen, G. C.	29-Math/Computer, NEC			
NAG 3-53	Northwestern University	2447			
Mechanisms of lean limit extinction					
<i>Period</i>		<i>Obligations</i>			
04/04/80-04/01/83	FY82:	TOTAL: \$89,999			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Law, C. K.	LERC/Baker, C. E.	46-Mech Engr			
NAG 3-134	Northwestern University	2448			
High temperature nonlinear constitutive material behavior with thermal fatigue					
<i>Period</i>		<i>Obligations</i>			
11/24/80-11/22/82	FY82: \$71,652	TOTAL: \$132,320			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nemat-nasser, S.	LERC/Chamis, C. C.	13-Physics			
Weertman, J. R.	LERC/Thompson, R. L.				
NAG 3-345	Northwestern University	2449			
Non-involute helical gears: Methods of generation, geometry of surfaces, precision, contract and bending stresses and lubrication					
<i>Period</i>		<i>Obligations</i>			
10/02/82-10/01/83	FY82: \$94,791	TOTAL: \$94,791			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Cheng, H. S.	LERC/Zaretsky, E. V.	46-Mech Engr			
Litvin, F. L.					
NAG 5-181	Northwestern University	2450			
Research relative to electroformed X-ray mirrors					
<i>Period</i>		<i>Obligations</i>			
05/15/81-05/14/83	FY82: \$30,000	TOTAL: \$62,300			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulmer, M. P.	GSFC/Early, L. J.	11-Astronomy			
NAG 8-326	Northwestern University	2451			
Observations of distant Abell clusters discovered as X-ray sources by High Energy Astronomical Observatory-A-1 and observations of IC 3576 and NGC 4410 A/B					
<i>Period</i>		<i>Obligations</i>			
03/01/80-02/28/82	FY82:	TOTAL: \$13,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulmer, M. P.	MSFC/Jones, J. B.	11-Astronomy			
Bhavsar, S.					
Shulman, S.					
NAG 8-367	Northwestern University	2452			
Research in galactic and extragalactic X-ray astronomy					
<i>Period</i>		<i>Obligations</i>			
08/20/80-06/30/83	FY82: \$15,271	TOTAL: \$28,959			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulmer, M. P.	MSFC/Stone, J. F.	11-Astronomy			
NAG 8-368	Northwestern University	2453			
Observations of Abell clusters discovered as X-ray sources by HEAO-A-1, II					
<i>Period</i>		<i>Obligations</i>			
08/15/80-08/15/82	FY82:	TOTAL: \$13,747			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulmer, M. P.	MSFC/Stone, J. F.	11-Astronomy			
NAG 8-415	Northwestern University	2454			
Observations of massive O type runaway stars					
<i>Period</i>		<i>Obligations</i>			
07/15/81-07/14/82	FY82:	TOTAL: \$1,888			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Taam, R. E.	MSFC/Stone, J. F.	11-Astronomy			

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NAG 8-416 Northwestern University 2455
Observations of Abell clusters discovered as X-ray sources by HEAO A-1, III

<i>Period</i>	<i>Obligations</i>	
07/18/81-07/17/82	FY82: TOTAL: \$5,354	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ulmer, M. P.	MSFC/Stone, J. F.	11-Astronomy

NSG 2328 Northwestern University 2462
Impact of international noise abatement regulations on the U.S. aircraft manufacturing and air carrier industries

<i>Period</i>	<i>Obligations</i>	
05/15/78-10/15/80	FY82: TOTAL: \$48,619	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spencer, F. A.	ARC/Faye, A. E.	41-Aero Engr

NAGW 339 Northwestern University 2456
Biotic factors as homeo-static controls of biogeochemical cycles: Geological past and present

<i>Period</i>	<i>Obligations</i>	
06/01/82-11/30/82	FY82: \$35,742 TOTAL: \$35,742	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lerman, A. Garrels, R. M.	HQ-EB/Rambler, M. HQ-EB/Devincenzi, D. L.	51-Biological Sci

NSG 3143 Northwestern University 2463
Dynamic load and lubrication of spiral bevel gears

<i>Period</i>	<i>Obligations</i>	
03/15/77-12/18/82	FY82: TOTAL: \$138,067	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cheng, H. S.	LERC/Coy, J. J. LERC/Zaretsky, E. V.	46-Mech Engr

NAS 5-27238 Northwestern University 2457
SLR/VLBI investigations of regional lithospheric deformation and contemporary plate motions

<i>Period</i>	<i>Obligations</i>	
07/15/82-07/15/84	FY82: \$55,000 TOTAL: \$55,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stein, S. Gordon, R. G. Jurdy, D. M.	GSFC/Mead, G. D.	32-Geological Sci

NAS 9-16035 Rush University 2464
Response to sudden torques about the ankle man: The myotatic reflex

<i>Period</i>	<i>Obligations</i>	
01/17/80-01/31/82	FY82: TOTAL: \$39,932	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gottlieb, G. L.	JSC/Evans, J. S.	59-Life Sci, NEC

NAS 8-33010 Northwestern University 2458
Research in galactic and extragalactic astronomy HEAO-1

<i>Period</i>	<i>Obligations</i>	
06/01/78-09/30/81	FY82: TOTAL: \$38,383	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ulmer, M. P.	MSFC/Jones, J. B., Jr.	11-Astronomy

NAGW 344 Southern Illinois University - Carbondale 2465
Origin and evolution of osmoregulatory mechanisms in blue-green algae

<i>Period</i>	<i>Obligations</i>	
06/15/82-06/14/83	FY82: \$78,613 TOTAL: \$78,613	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yopp, J. H.	HQ-EB/Devincenzi, D. L.	51-Biological Sci

NAS 8-33881 Northwestern University 2459
Thermocapillary flows and their stability: Effects of surface layers and contamination

<i>Period</i>	<i>Obligations</i>	
07/11/80-07/10/83	FY82: \$143,311 TOTAL: \$387,185	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, S. H.	MSFC/Williams, J. R. MSFC/Schafer, C. F.	19-Phys Sci, NEC

NCA 2-735201 Southern Illinois University - Carbondale 2466
Signal processing methods for gas chromatographic analysis

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$9,917 TOTAL: \$9,917	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Phillips, J.	ARC/Carle, G. C.	12-Chemistry

NCC 3-13 Northwestern University 2460
Interdisciplinary collaboration in tribology

<i>Period</i>	<i>Obligations</i>	
05/19/80-08/18/82	FY82: TOTAL: \$18,757	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cheng, H. S.	LERC/Wedeven, L. D.	46-Mech Engr

NCC 3-7 Southern Illinois University - Carbondale 2467
Lighting protection for wind turbines study

<i>Period</i>	<i>Obligations</i>	
03/01/80-03/29/83	FY82: \$114,008 TOTAL: \$340,924	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dodd, C. W. Smith, J. G. McCalla, T. M.	LERC/Bankaitis, H. V. LERC/Finnegan, P. M.	45-Elec Engr

NGL 14-007-041 Northwestern University 2461
A study of celestial objects of high angular momenta

<i>Period</i>	<i>Obligations</i>	
02/18/66-10/31/82	FY82: TOTAL: \$265,251	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huang, S.	HQ-EZ/Weiler, E. J.	11-Astronomy

NGT 14-018-800 Southern Illinois University - Carbondale 2468
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/81-07/31/83	FY82: \$13,000 TOTAL: \$26,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Phillips, J. B.	HQ-LB/Carter, C. H.	12-Chemistry

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NAG 2-148 **University of Chicago** **2469**
Physiology of the vestibular system
Period *Obligations*
 12/01/81-12/31/82 **FY82: \$53,000** **TOTAL: \$53,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Goldberg, J. M. ARC/Daunton, N. G. 51-Biological Sci

NAG 5-53 **University of Chicago** **2470**
Observations of highly obscured interstellar clouds
Period *Obligations*
 05/01/80-07/31/81 **FY82:** **TOTAL: \$22,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Frisch, P. C. GSFC/Boguess, A. 11-Astronomy

NAG 5-125 **University of Chicago** **2471**
Ultraviolet observations of an interstellar cloud with anomalous depletions
Period *Obligations*
 10/15/80-10/14/81 **FY82:** **TOTAL: \$9,055**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Frisch, P. C. GSFC/Corrigan, J. P. 11-Astronomy

NAG 5-129 **University of Chicago** **2472**
Parameterization of cumulus convection and relative effects of clouds
Period *Obligations*
 12/15/80-07/31/83 **FY82: \$54,075** **TOTAL: \$111,340**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kuo, H. L. GSFC/Kalnay, E. 31-Atmos Sci

NAG 5-255 **University of Chicago** **2473**
Observations of interstellar carbon
Period *Obligations*
 07/15/82-07/14/83 **FY82: \$1,000** **TOTAL: \$1,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hobbs, L. M. GSFC/Kondo, Y. 11-Astronomy
 York, D. G.

NAGW 4 **University of Chicago** **2474**
Submillimeter astronomy at the NASA University of Hawaii 3-meter infrared telescope facility
Period *Obligations*
 10/01/79-03/31/83 **FY82: \$40,005** **TOTAL: \$152,763**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hildebrand, R. H. HQ-EL/Brunk, W. E. 11-Astronomy
 HQ-EL/Brinton, H. C.

NAGW 123 **University of Chicago** **2475**
Supernovae as cosmological distance indicators
Period *Obligations*
 12/01/80-09/30/82 **FY82:** **TOTAL: \$27,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Arnett, W. D. HQ-EZ/Kaluzienski, L. J. 11-Astronomy

NAS 2-8551 **University of Chicago** **2476**
Pioneer F/G charged particle experiment data analysis
Period *Obligations*
 08/09/71-09/30/81 **FY82: \$17,000** **TOTAL: \$2,151,176**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simpson, J. A. ARC/Fimmel, R. O. 11-Astronomy
 ARC/Dyer, J. W.

NAS 2-11126 **University of Chicago** **2477**
Pioneer 10/11 charged particle instrument data reduction and analysis
Period *Obligations*
 10/01/81-09/30/82 **FY82: \$240,000** **TOTAL: \$240,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simpson, J. A. ARC/Fimmel, R. O. 42-Astro Engr
 McKibben, R. B. ARC/Leidich, C. A.
 Tuzzolino, A. J.

NAS 5-20674 **University of Chicago** **2478**
Quasi ray electrons experiment for ISEE-C heliocentric orbit
Period *Obligations*
 10/24/74-12/31/81 **FY82: \$3,531** **TOTAL: \$1,329,501**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meyer, P. GSFC/Wales, R. O. 13-Physics

NAS 5-24430 **University of Chicago** **2479**
Design, develop, fabricate and testing of a scientific instrument for an experiment to measure cosmic ray isotopes
Period *Obligations*
 12/01/77-09/30/84 **FY82: \$318,500** **TOTAL: \$1,653,282**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simpson, J. A. GSFC/Davis, M. A. 13-Physics

NAS 5-25731 **University of Chicago** **2480**
Interplanetary monitoring platform-J data reduction and analysis
Period *Obligations*
 12/01/79-12/31/82 **FY82: \$120,000** **TOTAL: \$327,885**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wright, D. K., Jr. GSFC/Gemmell, J. 11-Astronomy

NAS 5-26076 **University of Chicago** **2481**
Definition phase for transition radiation and ionization calorimeter (TRIC) telescope
Period *Obligations*
 03/21/80-02/27/81 **FY82:** **TOTAL: \$139,145**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Muller, D. GSFC/Ormes, J. F. 11-Astronomy

NAS 5-26680 **University of Chicago** **2482**
International Sun-Earth Explorer cosmic ray electron experiment
Period *Obligations*
 06/01/81-10/31/82 **FY82: \$138,758** **TOTAL: \$242,758**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meyer, P. GSFC/Wales, R. O. 31-Atmos Sci

NAS 8-32828 **University of Chicago** **2483**
Elemental composition and energy spectra of cosmic ray nuclei
Period *Obligations*
 10/28/77-11/30/84 **FY82: \$1,309,425** **TOTAL: \$6,354,528**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Myers, P. MSFC/Guynes, B. V. 31-Atmos Sci
 Muller, D. MSFC/Isa, R.

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NAS 8-34770 University of Chicago 2484
Analysis of Doppler lidar wind measurements
Period *Obligations*
05/19/82-05/18/84 FY82: \$29,789 TOTAL: \$29,789
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Srivastaya, R. C. MSFC/Fitzgarrald, D. E. 31-Atmos Sci

NCA 2-108101 University of Chicago 2485
Numerical experiments in the formation of galaxies and clusters of galaxies
Period *Obligations*
06/02/81-06/01/83 FY82: TOTAL: \$19,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, R. H. ARC/Smith, B. F. 11-Astronomy

NCA 2-108201 University of Chicago 2486
Resonant grid submillimeter filters
Period *Obligations*
05/01/82-12/31/82 FY82: \$11,035 TOTAL: \$11,035
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hildebrand, R. H. ARC/Roelling, J. P. 11-Astronomy
Jaffe, D. ARC/Werner, M. W.
Dragovan, M.

NCA 2-108902 University of Chicago 2487
Numerical experiments in galactic dynamics and planetary formation
Period *Obligations*
11/15/78-06/01/81 FY82: TOTAL: \$20,952
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, R. H. ARC/Smith, B. F. 11-Astronomy
Arnett, W. D.

NGL 14-001-001 University of Chicago 2488
Investigation of effects of solar wind in interplanetary space
Period *Obligations*
08/01/60-01/31/83 FY82: \$104,138 TOTAL: \$1,445,685
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, E. N. HQ-EZ/Gilman, D. A. 11-Astronomy
HQ-EZ/Holt, S. S.

NGL 14-001-005 University of Chicago 2489
High altitude balloon investigations on composition, energy spectrum and intensity of primary cosmic radiation at high and intermediate geomagnetic latitudes
Period *Obligations*
05/01/61-11/30/82 FY82: \$390,000 TOTAL: \$7,075,258
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. HQ-EZ/Opp, A. G. 11-Astronomy
HQ-EZ/Kaluzienski, L. J.

NGL 14-001-006 University of Chicago 2490
Experimental and theoretical studies of energetic particles and electro-dynamical processes in interplanetary space and in vicinity of planets
Period *Obligations*
08/01/61-12/31/82 FY82: \$430,000 TOTAL: \$7,729,396
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. HQ-EZ/Opp, A. G. 11-Astronomy
HQ-EZ/Kaluzienski, L. J.

NGL 14-001-010 University of Chicago 2491
Research and investigation of origin, age and composition of meteorites
Period *Obligations*
03/11/63-02/28/83 FY82: \$245,000 TOTAL: \$2,313,503
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anders, E. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NGL 14-001-167 University of Chicago 2492
Lunar sample analysis
Period *Obligations*
03/29/72-05/31/82 FY82: TOTAL: \$1,740,005
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anders, E. JSC/Dietrich, J. W. 13-Physics

NGL 14-001-169 University of Chicago 2493
Lunar sample analysis
Period *Obligations*
01/19/71-01/31/83 FY82: \$190,000 TOTAL: \$1,378,560
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clayton, R. N. JSC/Dietrich, J. W. 12-Chemistry

NGL 14-001-171 University of Chicago 2494
Lunar sample analysis
Period *Obligations*
01/19/71-01/31/83 FY82: \$120,000 TOTAL: \$943,684
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, J. V. JSC/Dietrich, J. W. 13-Physics

NGL 14-001-258 University of Chicago 2495
Advanced technical developments in support of scientific experiments in space
Period *Obligations*
06/15/73-03/31/83 FY82: \$100,000 TOTAL: \$2,295,996
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. HQ-E/Gaskins, M. A. 99-Multi-Discip
Muller, D. HQ-E/Devlin, J. F.
Simpson, J. A.

NGR 14-001-008 University of Chicago 2496
Meteorological interpretation of satellite radiation data
Period *Obligations*
09/01/70-10/30/82 FY82: \$85,000 TOTAL: \$1,684,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fujita, T. T. HQ-EB/Dodge, J. C. 31-Atmos Sci

NGR 14-001-135 University of Chicago 2497
Feasibility of the alpha scattering technique for Martian surface analysis
Period *Obligations*
02/25/69-08/31/82 FY82: TOTAL: \$909,976
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turkevich, A. L. HQ-EL/Taylor, L. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NGR 14-001-147 University of Chicago 2498
Interferometric high-resolution spectroscopy of optical interstellar lines
Period *Obligations*
03/18/70-06/30/83 FY82: \$43,900 TOTAL: \$402,463
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hobbs, L. M. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Bogges, N. W.

NSG 7464 University of Chicago 2506
Studies of the energy spectrum of cosmic ray electrons
Period *Obligations*
07/01/78-08/01/82 FY82: \$60,000 TOTAL: \$300,332
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muller, D. HQ-EZ/Opp, A. G. 31-Atmos Sci
HQ-EZ/Kaluzienski, L. J.

NGR 14-001-225 University of Chicago 2499
Physiology of the vestibular system of the squirrel monkey
Period *Obligations*
05/12/67-03/31/82 FY82: TOTAL: \$516,893
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldberg, J. M. ARC/Daunton, N. G. 51-Biological Sci

NAG 3-48 University of Illinois - Chicago Circle 2507
Synthesis and optimization of spiral bevel gear tooth surfaces
Period *Obligations*
03/21/80-08/18/83 FY82: TOTAL: \$131,884
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Litvin, F. L. LERC/Coy, J. J. 46-Mech Engr

NGR 14-001-227 University of Chicago 2500
Photometry of galactic and extragalactic far infrared sources using the 91.5 cm airborne infrared telescope
Period *Obligations*
02/27/73-03/31/83 FY82: \$184,237 TOTAL: \$1,006,076
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harper, D. A., Jr. ARC/Haughney, L. C. 11-Astronomy

NAG 3-136 University of Illinois - Chicago Circle 2508
Preparation of a NASA reference publication entitled 'Theory of Gearing'
Period *Obligations*
12/08/80-12/07/82 FY82: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Litvin, F. L. LERC/Coy, J. J. 46-Mech Engr

NGR 14-001-249 University of Chicago 2501
Physical properties of solar nebula as deduced from chondrites
Period *Obligations*
05/14/73-03/31/83 FY82: \$145,084 TOTAL: \$1,073,473
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grossman, L. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NCA 2-330101 University of Illinois - Chicago Circle 2509
Multiple dimensional radiative transfer and aerosol properties in support of climate studies
Period *Obligations*
10/01/80-09/30/82 FY82: \$18,100 TOTAL: \$44,720
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cogley, A. C. ARC/Pollack, J. B. 49-Engr, NEC

NSG 2057 University of Chicago 2502
Study of sensitive detection system for far infrared astronomy
Period *Obligations*
12/01/74-10/31/82 FY82: \$77,500 TOTAL: \$390,966
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hildebrand, R. H. ARC/Haughney, L. C. 11-Astronomy

NAG 1-76 University of Illinois, Urbana 2510
The study of wake pressure recovery as a factor in airfoil design
Period *Obligations*
06/15/80-09/30/82 FY82: TOTAL: \$91,142
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ormsbee, A. I. LARC/Somers, D. M. 41-Aero Engr

NSG 5402 University of Chicago 2503
Research of precipitation growth in convective clouds
Period *Obligations*
08/01/79-07/31/81 FY82: TOTAL: \$26,474
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Srivastava, R. C. GSFC/Adler, R. F. 31-Atmos Sci

NAG 1-90 University of Illinois, Urbana 2511
Multi-level semantic analysis and problem solving in the flight domain
Period *Obligations*
07/11/80-07/10/81 FY82: TOTAL: \$74,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chien, R. T. LARC/Hankins, W. W. 41-Aero Engr
LARC/Pennington, J. E.

NSG 7212 University of Chicago 2504
Nuclear astrophysics effects in meteoritic and lunar material
Period *Obligations*
03/01/76-02/28/83 FY82: \$50,000 TOTAL: \$310,246
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schramm, D. N. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/French, B. E.

NAG 1-138 University of Illinois, Urbana 2512
Automate the management of software production systems
Period *Obligations*
01/21/81-01/20/83 FY82: \$64,226 TOTAL: \$129,144
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Campbell, R. H. LARC/Senn, E. H. 22-Computer Science
Ardis, M. A.

NSG 7303 University of Chicago 2505
Applications of electron microscopy in molecular exobiology and extraterrestrial research
Period *Obligations*
12/01/76-12/31/82 FY82: TOTAL: \$105,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fernandez, H. HQ-EB/Soffen, G. A. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NAG 1-286 University of Illinois, Urbana 2513
Analyses of interlaminar fracture tests and delamination in composite materials
Period *Obligations*
06/21/82-01/20/83 FY82: \$33,183 TOTAL: \$33,183
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, S. S. LARC/Johnston, N. J. 47-Materials Engr
LARC/O'Brien, T. K.

NAG 3-153 University of Illinois, Urbana 2520
Lubricating effectiveness of solid lubricant additives in mineral oils
Period *Obligations*
01/15/81-04/13/83 FY82: \$37,618 TOTAL: \$72,063
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cusano, C. LERC/Fusaro, R. L. 46-Mech Engr

NAG 1-288 University of Illinois, Urbana 2514
Multilevel semantic analysis and problem-solving in the flight domain
Period *Obligations*
07/11/82-01/10/83 FY82: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chien, R. T. LARC/Hankins, W. W.
29-Math/Cmputer, NEC
LARC/Samms, K. H.

NAG 3-325 University of Illinois, Urbana 2521
A study of reductions of Cr in Ni-base superalloys through element substitution and rapid solidification processing
Period *Obligations*
09/15/82-09/14/84 FY82: \$110,190 TOTAL: \$110,190
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fraser, H. L. LERC/Dreshfield, R. L. 47-Materials Engr
Muddle, B. C.

NAG 2-94 University of Illinois, Urbana 2515
Studies of the role of metastables and doubly ionized species in the chemical and thermal structure of the Venusian and Martian ionospheres
Period *Obligations*
12/01/80-11/30/81 FY82: TOTAL: \$13,549
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fox, J. L. ARC/Fimmel, R. O. 19-Phys Sci, NEC

NAG 5-84 University of Illinois, Urbana 2522
Study the dynamics of old supernova remnants by comparison of multi-wavelength data
Period *Obligations*
06/25/80-12/31/81 FY82: \$540 TOTAL: \$4,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dickel, J. R. GSFC/Gull, T. R. 11-Astronomy

NAG 2-144 University of Illinois, Urbana 2516
Investigation of the heat transfer to the effluent gas
Period *Obligations*
10/01/81-06/30/82 FY82: \$15,540 TOTAL: \$15,540
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chato, J. C. ARC/Kittel, P. 46-Mech Engr

NAG 5-85 University of Illinois, Urbana 2523
Research of mass loss from selected supergiant stars
Period *Obligations*
07/01/80-01/31/82 FY82: TOTAL: \$18,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lamb, S. A. GSFC/Boggess, A. 11-Astronomy
Sargent, W. L.

NAG 2-169 University of Illinois, Urbana 2517
Investigation of the basis of subjective ratings of mental workload
Period *Obligations*
03/15/82-03/14/83 FY82: \$19,817 TOTAL: \$19,817
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wickens, C. D. ARC/Hart, S. G. 99-Multi-Discip

NAG 5-132 University of Illinois, Urbana 2524
Tropical cyclone track and genesis forecasting
Period *Obligations*
01/01/81-06/30/82 FY82: TOTAL: \$34,347
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kidder, S. Q. GSFC/Rodgers, E. B. 31-Atmos Sci

NAG 3-60 University of Illinois, Urbana 2518
The mechanisms of flame holding in the wake of a bluff body
Period *Obligations*
05/21/80-05/18/83 FY82: TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strehlow, R. A. LERC/Baker, C. E. 41-Aero Engr

NAG 5-171 University of Illinois, Urbana 2525
Observation of central stars of large planetary nebulae
Period *Obligations*
05/01/81-10/31/82 FY82: \$4,850 TOTAL: \$8,850
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kaler, J. B. GSFC/Kondo, Y. 11-Astronomy
Feibelman, W. A.

NAG 3-149 University of Illinois, Urbana 2519
Investigation of adaptive multibeam phased array technique
Period *Obligations*
01/02/81-04/30/82 FY82: TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mitra, R. LERC/Smetana, J. 45-Elec Engr
Lee, S. W.
Ko, W. L.

NAG 8-310 University of Illinois, Urbana 2526
Investigation of X-ray spectra of accreting non-magnetic degenerate dwarfs
Period *Obligations*
03/01/80-08/31/82 FY82: TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lamb, D. Q. MSFC/Stone, J. F. 11-Astronomy
Mason, K. O.
Brandnardi, G.

**NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)**

NAG 8-409	University of Illinois, Urbana	2527			
To obtain a second epoch observation of Cas A					
<i>Period</i>		<i>Obligations</i>			
07/28/81-12/31/82	FY82:	TOTAL: \$10,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dickel, J. R.	MSFC/Stone, J. F.	11-Astronomy			
Cowif, L. L.					
Fabin, A. C.					
NAGW 207	University of Illinois, Urbana	2528			
Middle atmosphere program management					
<i>Period</i>		<i>Obligations</i>			
01/01/81-12/31/81	FY82:	TOTAL: \$30,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Liu, C. H.	HQ-EZ/Mayr, H. G.	45-Elec Engr			
	HQ-EZ/Schmerling, E. R.				
NAS 3-22666	University of Illinois, Urbana	2529			
Use of a laser Doppler velocimeter in flammability tube					
<i>Period</i>		<i>Obligations</i>			
01/21/81-09/02/82	FY82:	TOTAL: \$35,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Strehlow, R. A.	LERC/Dewitt, R. L.	45-Elec Engr			
NAS 3-23770	University of Illinois, Urbana	2530			
Flammability limits of gases under low gravity conditions					
<i>Period</i>		<i>Obligations</i>			
09/30/82-12/15/83	FY82: \$43,095	TOTAL: \$43,095			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Strehlow, R. A.	LERC/Nussle, R. C.	19-Phys Sci, NEC			
	LERC/Labus, T. L.				
NAS 5-25062	University of Illinois, Urbana	2531			
Study of antenna diffraction problems					
<i>Period</i>		<i>Obligations</i>			
06/23/78-04/30/81	FY82:	TOTAL: \$140,229			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Mittra, R.	GSFC/Keating, T., Jr.	45-Elec Engr			
Lee, S.					
Ko, W. L.					
NAS 5-26405	University of Illinois, Urbana	2532			
Design and application of parallel processors					
<i>Period</i>		<i>Obligations</i>			
12/12/80-12/11/85	FY82: \$106,725	TOTAL: \$166,725			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Slotnick, D. L.	GSFC/Schaefer, D. H.	22-Computer Science			
NAS 8-34902	University of Illinois, Urbana	2533			
Application of satellite data in variational objective analysis					
<i>Period</i>		<i>Obligations</i>			
08/27/82-08/26/85	FY82: \$76,000	TOTAL: \$76,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Achtemeier, G. L.	MSFC/Fichil, G. A.	31-Atmos Sci			
	MSFC/Kaulman, J. W.				
NAS 9-15328	University of Illinois, Urbana	2534			
Definition of Spacelab I experiment on effects of prolonged weightlessness on the humoral response in humans					
<i>Period</i>		<i>Obligations</i>			
07/15/77-12/01/83	FY82:	TOTAL: \$59,268			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Voss, E. W.	JSC/Peck, E. E.	59-Life Sci, NEC			
NASW 3648	University of Illinois, Urbana	2535			
Support of the international middle atmosphere program management					
<i>Period</i>		<i>Obligations</i>			
06/14/82-06/15/83	FY82: \$21,275	TOTAL: \$21,275			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Liu, C. H.	HQ-EE/Lynch, J. T.	13-Physics			
	HQ-EE/Schmerling, E. R.				
NCC 1-52	University of Illinois, Urbana	2536			
Multilevel semantic analysis and problem-solving in the flight domain					
<i>Period</i>		<i>Obligations</i>			
07/11/81-07/10/82	FY82:	TOTAL: \$100,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Chien, R. T.	LARC/Hankins, W. W.	29-Math/Computer, NEC			
	LARC/Pennington, J. E.				
NGR 14-005-176	University of Illinois, Urbana	2537			
Investigation of the atmosphere of Jupiter by studying the ammonia feature at a wavelength of 1.26cm					
<i>Period</i>		<i>Obligations</i>			
05/22/72-12/31/82	FY82:	TOTAL: \$76,367			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Dickel, J. R.	HQ-EL/Brunk, W. E.	11-Astronomy			
NGR 14-005-181	University of Illinois, Urbana	2538			
Rocket studies of the lower ionosphere					
<i>Period</i>		<i>Obligations</i>			
08/01/71-10/31/82	FY82: \$400,000	TOTAL: \$4,884,817			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Bowhill, S. A.	GSFC/Early, L. J.	19-Phys Sci, NEC			
	WFC/Pless, R. H.				
NSG 1471	University of Illinois, Urbana	2539			
A project to investigate mechanisms and methodologies for the design and construction of reliable, distributed programs in real-time environments					
<i>Period</i>		<i>Obligations</i>			
11/15/77-08/20/83	FY82: \$80,759	TOTAL: \$418,178			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Campbell, R. H.	LARC/Foudriat, E. C.	21-Mathematics			
	LARC/Orlando, N. E.				
NSG 1547	University of Illinois, Urbana	2540			
An experimental investigation of 235UF6 fission produced plasmas					
<i>Period</i>		<i>Obligations</i>			
07/01/78-12/31/81	FY82:	TOTAL: \$120,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Miley, G. H.	LARC/Jalufka, N. W.	13-Physics			

NASA'S UNIVERSITY PROGRAM

ILLINOIS (Continued)

NSG 1609 **University of Illinois, Urbana** 2541
Lasing characteristics of gas mixtures involving UF6 application to nuclear pumping of lasers
Period *Obligations*
04/15/79-01/31/83 FY82: \$20,000 TOTAL: \$156,832
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Verdeyen, J. T. LARC/Deyoung, R. J. 13-Physics
Eden, J. G. LARC/Conway, E. J.

NSG 2119 **University of Illinois, Urbana** 2542
Pilot interaction with automated airborne decision making systems
Period *Obligations*
11/01/75-08/20/81 FY82: TOTAL: \$343,570
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rouse, W. B. ARC/Palmer, E. A. 99-Multi-Discip
ARC/Wempe, T. E.

NSG 5049 **University of Illinois, Urbana** 2543
Effects of atmospheric refraction and turbulence on the accuracy of laser systems
Period *Obligations*
02/01/75-04/30/83 FY82: \$38,080 TOTAL: \$292,502
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gardner, C. S. GSFC/Abshire, J. B. 45-Elec Engr
Swenson, G. W.

NSG 5319 **University of Illinois, Urbana** 2544
Theoretical studies of the solar corona, solar maximum mission
Period *Obligations*
01/15/79-01/14/83 FY82: TOTAL: \$41,568
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mouschovias, T. C. GSFC/Wende, C. 31-Atmos Sci

NSG 7044 **University of Illinois, Urbana** 2545
Evolution of the cell and the translation process
Period *Obligations*
06/01/74-08/31/83 FY82: \$93,000 TOTAL: \$566,620
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Woese, C. R. HQ-EB/Devincenzi, D. L. 12-Chemistry

NSG 7506 **University of Illinois, Urbana** 2546
Studies of upper-atmosphere motions by UHF
Period *Obligations*
10/01/78-11/30/82 FY82: \$75,000 TOTAL: \$321,798
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowhill, S. A. HQ-EE/Chandra, S. 31-Atmos Sci
HQ-EE/Watson, R. T.

NSG 7653 **University of Illinois, Urbana** 2547
Fundamental studies in theoretical X-ray astronomy
Period *Obligations*
09/01/79-10/31/82 FY82: \$105,000 TOTAL: \$375,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lamb, D. Q. HQ-EZ/Kaluziowski, L. 11-Astronomy
Pethick, C. J. HQ-EZ/Opp, A. G.
Pines, D.

NAG 1-42 **Western Illinois University** 2548
Research in numerical algorithms for the finite element machine
Period *Obligations*
03/01/80-02/28/83 FY82: TOTAL: \$40,050
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McBride, W. E. LARC/Peebles, S. W. 21-Mathematics

INDIANA

NAG 5-182 **Indiana University - Bloomington** 2549
Studies of the ultraviolet spectra of carbon stars
Period *Obligations*
05/15/81-11/30/82 FY82: \$10,366 TOTAL: \$17,366
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, H. R. GSFC/Kondo, Y. 11-Astronomy
O'Brien, G. T.

NAG 5-198 **Indiana University - Bloomington** 2550
Quasi-simultaneous synoptic observations of selected objects in several wave-length regions
Period *Obligations*
08/01/81-07/31/83 FY82: \$1,552 TOTAL: \$3,350
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kondo, Y. GSFC/Kondo, Y. 11-Astronomy
Mushotzky, R.
Mufson, S. L.

NAG 8-331 **Indiana University - Bloomington** 2551
Investigation of the X-ray and optical properties of S-type Markarian galaxies: Simultaneous photometric and spectroscopic observations of X Persei
Period *Obligations*
02/15/80-02/14/82 FY82: TOTAL: \$13,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mufson, S. L. MSFC/Stone, J. F. 11-Astronomy
Hutter, D. J.

NAG 8-362 **Indiana University - Bloomington** 2552
High Energy Astronomical Observatory-A1 observations of AM Herculis and related objects
Period *Obligations*
08/20/80-08/20/83 FY82: TOTAL: \$8,532
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Durisen, R. H. MSFC/Stone, J. F. 11-Astronomy
Imamura, J. N.

NAG 8-365 **Indiana University - Bloomington** 2553
A search for Compton scattered X-rays in selected compact extragalactic objects
Period *Obligations*
08/20/80-08/18/82 FY82: TOTAL: \$8,105
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mufson, S. L. MSFC/Stone, J. F. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)**

NAG 8-396	Indiana University - Bloomington	2554
Coordinated X-ray and optical observations of Markarian 180, and the search for X-ray emission from S-type Markarian galaxies		
<i>Period</i>	<i>Obligations</i>	
06/15/81-06/14/83	FY82: TOTAL: \$14,348	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mufson, S. L.	MSFC/Stone, J. F.	11-Astronomy
Wisniewski, W. Z.		
NAGW 60	Indiana University - Bloomington	2555
The role of gravity perception in the establishment of the dorsal ventral axis of the amphibian egg		
<i>Period</i>	<i>Obligations</i>	
06/01/80-06/30/83	FY82: \$65,864 TOTAL: \$140,433	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Malacinski, G. M.	HQ-EB/Halstead, T. W.	51-Biological Sci
NAGW 98	Indiana University - Bloomington	2556
Reconnaissance and recovery of the brighter asteroids		
<i>Period</i>	<i>Obligations</i>	
08/15/80-02/28/82	FY82: TOTAL: \$25,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Edmondson, F. K.	HQ-EL/Brunk, W. E.	11-Astronomy
NAS 5-22987	Indiana University - Bloomington	2557
Digital techniques applied to surface photometry of low contrast astronomical objects		
<i>Period</i>	<i>Obligations</i>	
02/11/76-12/31/80	FY82: TOTAL: \$59,895	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burkhead, M. S.	GSFC/Hobbs, R. W.	11-Astronomy
NAS 8-33087	Indiana University - Bloomington	2558
Correlated ground base observations in support of the HEAO-1 X-ray observatory		
<i>Period</i>	<i>Obligations</i>	
06/01/78-07/26/81	FY82: TOTAL: \$45,129	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mufson, S. L.	MSFC/Dailey, C. C.	11-Astronomy
Wisniewski, W. Z.		
Johnson, H. L.		
NCA 2-335001	Indiana University - Bloomington	2559
The role of the sympathoadrenal system during exposure to heat and cold		
<i>Period</i>	<i>Obligations</i>	
03/01/80-05/31/82	FY82: TOTAL: \$39,482	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elizondo, R.	ARC/Greenleaf, J. E.	56-Medical Sciences
NCA 2-335101	Indiana University - Bloomington	2560
The evolution of Saturn's rings due to erosion mechanisms		
<i>Period</i>	<i>Obligations</i>	
06/01/81-06/01/83	FY82: \$4,000 TOTAL: \$8,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weber, N. V.	ARC/Cuzzi, J. N.	11-Astronomy
NGR 15-003-118	Indiana University - Bloomington	2561
Application of ultra-high sensitivity isotope ratio mass spectrometry to organic geochemistry and cosmochemistry		
<i>Period</i>	<i>Obligations</i>	
06/20/72-06/30/83	FY82: \$93,500 TOTAL: \$822,966	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hayes, J. M.	HQ-EB/Devincenzi, D. L.	12-Chemistry
NGT 15-003-800	Indiana University - Bloomington	2562
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$13,000 TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Langhoff, P. W.	HQ-LB/Carter, C. H.	12-Chemistry
NSG 9072	Indiana University - Bloomington	2563
Investigation of regolith evolution through a petrographic and electronprobe analysis of soil samples		
<i>Period</i>	<i>Obligations</i>	
07/14/78-10/14/81	FY82: TOTAL: \$28,550	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Basu, A.	JSC/McKay, D. S.	32-Geological Sci
NSG 9077	Indiana University - Bloomington	2564
Characterization and evolution of Apollo 15 drill core soils, and the origin of green glass vitrophyres		
<i>Period</i>	<i>Obligations</i>	
07/15/79-02/15/83	FY82: \$25,000 TOTAL: \$103,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Basu, A.	JSC/Dietrich, J. N.	32-Geological Sci
NSG 3183	Indiana Univ.-Purdue U. at Indianapolis	2565
Numerical solution of the compressible boundary layer equations with viscous-inviscid interaction		
<i>Period</i>	<i>Obligations</i>	
01/16/78-01/13/83	FY82: \$39,056 TOTAL: \$140,874	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bodonyi, R. J.	LERC/Sockol, P. M.	41-Aero Engr
NSG 3294	Indiana Univ.-Purdue U. at Indianapolis	2566
Finite element analysis of transonic flow through a cascade of airfoils using a self-adaptive mesh		
<i>Period</i>	<i>Obligations</i>	
08/01/79-10/30/82	FY82: TOTAL: \$203,497	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ecer, A.	LERC/Chima, R. U.	41-Aero Engr
Akay, H.	LERC/Sockol, P. M.	
NAG 1-58	Purdue University	2567
A study of method to predict and measure the transmission of sound through the walls of light aircraft		
<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/83	FY82: \$86,265 TOTAL: \$270,266	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Crocker, M. J.	LARC/Mixson, J. S.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
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NAG 1-116 **Purdue University** **2568**
Multiple level techniques for computational fluid dynamics
Period *Obligations*
11/12/80-01/31/83 FY82: \$41,794 TOTAL: \$72,391
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCarthy, D. R. LARC/Swanson, R. C. 41-Aero Engr
LARC/Thames, E. C.

NAG 3-62 **Purdue University** **2575**
Water droplet dynamics in annular cascade
Period *Obligations*
04/15/80-04/13/83 FY82: \$94,941 TOTAL: \$271,812
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murthy, S. N. LERC/Steinke, R. J. 41-Aero Engr

NAG 1-157 **Purdue University** **2569**
Interactive aircraft flight control and aeroelastic stabilization
Period *Obligations*
05/01/81-10/31/82 FY82: \$32,999 TOTAL: \$70,811
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weisshaar, T. A. LARC/Newsom, J. R. 41-Aero Engr

NAG 3-204 **Purdue University** **2576**
Dynamics performance of turbine engines with water ingestion
Period *Obligations*
08/15/81-02/24/83 FY82: \$4,200 TOTAL: \$43,882
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murthy, S. N. LERC/Steinke, R. J. 41-Aero Engr

NAG 1-222 **Purdue University** **2570**
Modeling of contact behavior and damage in low velocity impact of composite laminates under initial stress
Period *Obligations*
11/01/81-10/31/82 FY82: \$80,038 TOTAL: \$80,038
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sun, C. T. LARC/Tilg, W. 19-Phys Sci, NEC
LARC/Kennedy, J. M.

NAG 3-211 **Purdue University** **2577**
Dynamic delamination crack propagation in composite laminates
Period *Obligations*
12/15/81-12/14/82 FY82: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sun, C. T. LERC/Chamis, C. C. 41-Aero Engr
LERC/Hirschbein, M. S.

NAG 1-231 **Purdue University** **2571**
Constraint effects on fatigue crack propagation
Period *Obligations*
01/01/82-06/30/83 FY82: \$53,873 TOTAL: \$53,873
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hillberry, B. M. LARC/Johnson, W. S. 46-Mech Engr
LARC/Newman, J. C., Jr.

NAG 3-226 **Purdue University** **2578**
Spontaneous ignition characteristics of hydrocarbon fuel/air mixtures
Period *Obligations*
11/15/81-11/14/82 FY82: \$59,953 TOTAL: \$59,953
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lefebvre, A. H. LERC/Tacina, R. R. 41-Aero Engr
Rizk, N. K.

NAG 1-254 **Purdue University** **2572**
Enhanced manual controllability via active control of aeroelastic vehicles
Period *Obligations*
02/01/82-01/31/83 FY82: \$53,500 TOTAL: \$53,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schmidt, D. K. LARC/Elliott, J. R. 41-Aero Engr
LARC/Brown, L. W.

NAG 3-266 **Purdue University** **2579**
Flame propagation and pollutant formation in heterogeneous and stratified mixtures of fuel drops and air
Period *Obligations*
03/10/82-10/10/83 FY82: \$116,156 TOTAL: \$116,156
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lefebvre, A. H. LERC/Clark, J. S. 46-Mech Engr
LERC/Beremand, D. G.

NAG 3-17 **Purdue University** **2573**
Sensor failure detection and control system accommodation
Period *Obligations*
02/01/80-03/29/83 FY82: \$55,275 TOTAL: \$146,720
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leininger, G. G. LERC/Lehtinen, B. 41-Aero Engr
LERC/Merrill, W. C.

NAG 3-281 **Purdue University** **2580**
Analysis of film cooling of supersonic turbojet engine nosels
Period *Obligations*
05/01/82-04/29/85 FY82: \$145,000 TOTAL: \$145,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murthy, S. N. LERC/Straight, D. M. 46-Mech Engr
LERC/Papell, S. S.

NAG 3-59 **Purdue University** **2574**
Cobalt in nickel base superalloys
Period *Obligations*
05/01/80-08/31/83 FY82: TOTAL: \$120,896
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Radavich, J. F. LERC/Scheuermann, C. M. 47-Materials Engr

NAG 4-1 **Purdue University** **2581**
The integrated manual and automatic control of complex flight vehicles
Period *Obligations*
01/01/80-12/31/81 FY82: \$56,500 TOTAL: \$166,002
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schmidt, D. K. DFRF/Berry, D. T. 41-Aero Engr
DFRF/Powers, B. G.

**NASA'S UNIVERSITY PROGRAM
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NAG 5-3 **Purdue University** **2582**
 Research on aspects of the massively parallel processor
Period *Obligations*
 01/01/80-08/31/82 FY82: \$34,884 TOTAL: \$97,949
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Reeves, A. P. GSFC/Strong, J. P. 45-Elec Engr
 GSFC/Wallgren, K.

NAS 5-26406 **Purdue University** **2589**
 Conference on remote sensing education
Period *Obligations*
 11/14/80-09/21/81 FY82: TOTAL: \$40,148
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Davis, S. M. GSFC/Short, N. M. 99-Multi-Discip

NAG 5-101 **Purdue University** **2583**
 Study the effect of cloud inhomogeneity on the Earth radiation budget
Period *Obligations*
 09/01/80-10/31/82 FY82: TOTAL: \$63,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Avies, R. D. GSFC/Curran, R. J. 31-Atmos Sci
 GSFC/King, M. D.

NAS 5-26859 **Purdue University** **2590**
 LANDSAT-4 image data quality analyses
Period *Obligations*
 08/09/82-12/09/84 FY82: \$100,000 TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Anuta, P. E. GSFC/Oseroff, H. 49-Engr, NEC

NAG 5-106 **Purdue University** **2584**
 Parameterization of cloud effects on the absorption of solar radiation
Period *Obligations*
 09/15/80-11/14/82 FY82: \$40,533 TOTAL: \$78,679
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Davies, R. GSFC/Shukla, T. 31-Atmos Sci

NAS 8-34009 **Purdue University** **2591**
 Utilization of satellite cloud information to diagnose the energy state and transformations in extratropical cyclones
Period *Obligations*
 06/01/81-05/31/84 FY82: \$56,063 TOTAL: \$106,192
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, P. J. MSFC/Fichtl, G. H. 31-Atmos Sci

NAG 5-231 **Purdue University** **2585**
 Geoid height and the thickness of the lithosphere
Period *Obligations*
 05/01/82-04/30/83 FY82: \$22,715 TOTAL: \$22,715
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Crough, S. T. GSFC/Kouns, C. W. 32-Geological Sci
 GSFC/McAdoo, D. C.

NAS 8-34303 **Purdue University** **2592**
 Investigation of the thermophysical properties of PbSnTe and HgCdTe
Period *Obligations*
 03/01/81-03/31/83 FY82: \$8,400 TOTAL: \$34,230
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Taylor, R. E. MSFC/Yates, I. C. 45-Elec Engr
 MSFC/Williams, J. R.

NAG 5-269 **Purdue University** **2586**
 Measurement and modeling of the optical scattering properties of crop canopies
Period *Obligations*
 09/01/82-08/31/83 FY82: \$75,753 TOTAL: \$75,753
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Vanderbilt, V. C. GSFC/Deering, D. 55-Agriculture Sci

NAS 9-15466 **Purdue University** **2593**
 Remote sensing of agriculture, Earth resources and man's environment
Period *Obligations*
 12/01/77-05/31/82 FY82: \$397,277 TOTAL: \$7,425,259
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bauer, M. E. JSC/Pitts, D. 39-Env Sci, NEC

NAS 2-10514 **Purdue University** **2587**
 Influences of mechanical vibration of plant growth and development under hypogravity conditions
Period *Obligations*
 01/17/80-11/16/81 FY82: TOTAL: \$17,379
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mitchell, C. A. ARC/Ferandin, J. 51-Biological Sci
 ARC/Mancini, R.

NAS 9-15889 **Purdue University** **2594**
 Evaluation of Side Looking Airborne Radar (SLAR) and simulated thematic Mapper Multi-spectral (MSS) data for forest cover mapping using computer aided analysis techniques
Period *Obligations*
 05/21/79-08/30/82 FY82: TOTAL: \$237,875
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hoffer, R. M. JSC/Hatcher, N. M. 32-Geological Sci

NAS 5-26287 **Purdue University** **2588**
 Magsat science investigation. Application of Magsat to lithospheric modeling in South America. Part 1: Processing and interpretation of magnetic and gravity anomaly data
Period *Obligations*
 09/26/80-01/25/83 FY82: TOTAL: \$96,342
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hinze, W. J. GSFC/Oseroff, H. 32-Geological Sci

NAS 9-16528 **Purdue University** **2595**
 Remote sensing of agriculture, Earth resources, and man's environment
Period *Obligations*
 12/01/81-11/30/82 FY82: \$874,000 TOTAL: \$874,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bauer, M. E. JSC/Browne, I. D. 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM
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NCA 2-605001 **Purdue University** **2596**
 A study of the factors influencing the performance and morale of small research groups in isolation
Period *Obligations*
 06/01/80-05/31/82 **FY82: \$1,383** **TOTAL: \$44,383**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Castore, C. H. ARC/Patton, M. 62-Social Aspects
 Heslin, R.

NSG 2192 **Purdue University** **2603**
 Joint cooperative program in computer graphics
Period *Obligations*
 11/01/76-12/31/81 **FY82:** **TOTAL: \$210,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Anderson, D. C. ARC/Carmichael, R. L. 41-Aero Engr
 White, P. R.
 Garrett, R. E.

NCA 2-605201 **Purdue University** **2597**
 Three dimensional transonic aerodynamic calculations
Period *Obligations*
 06/01/82-11/30/83 **FY82: \$19,958** **TOTAL: \$19,958**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Yang, H. T. ARC/Goorjian, P. 41-Aero Engr

NSG 2401 **Purdue University** **2604**
 Plant diversity to support humans in a controlled ecology life support system ground-based demonstrator
Period *Obligations*
 09/01/79-10/01/81 **FY82:** **TOTAL: \$136,314**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hoff, J. E. ARC/Zill, P. 59-Life Sci, NEC
 Howe, J. M.

NCC 2-100 **Purdue University** **2598**
 Higher plant species selection criteria for a closed ecological life support system: Photosynthetic and nutritional aspects
Period *Obligations*
 09/01/80-10/31/82 **FY82: \$89,863** **TOTAL: \$174,863**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mitchell, C. A. ARC/Zill, L. P. 55-Agriculture Sci

NSG 2404 **Purdue University** **2605**
 Higher plant species selection criteria for a closed ecological life support system: Photosynthetic and nutritional aspects
Period *Obligations*
 09/01/79-08/30/81 **FY82:** **TOTAL: \$70,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mitchell, C. A. ARC/Zill, L. P. 59-Life Sci, NEC

NCC 2-146 **Purdue University** **2599**
 NASA-Purdue University cooperative program in computer graphics
Period *Obligations*
 09/01/81-08/31/83 **FY82: \$32,146** **TOTAL: \$72,146**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Anderson, D. C. ARC/Cozzolongo, J. V. 41-Aero Engr

NSG 3105 **Purdue University** **2606**
 Expanding capabilities of NASA computer programs for fluid flow computations in turbomachinery
Period *Obligations*
 06/01/76-09/29/81 **FY82:** **TOTAL: \$56,131**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ragsdell, K. M. LERC/Katsanis, T. 41-Aero Engr
 Thompson, H. D.

NCC 2-192 **Purdue University** **2600**
 Flight controls and displays of V/STOL aircraft
Period *Obligations*
 06/01/82-11/30/83 **FY82: \$34,041** **TOTAL: \$34,041**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schmidt, D. K. ARC/Franklin, J. A. 41-Aero Engr
 Andrisani, D., Jr.

NSG 3135 **Purdue University** **2607**
 Aerodynamics parameters affecting turbopropeller performance
Period *Obligations*
 01/15/77-09/26/83 **FY82: \$229,648** **TOTAL: \$559,781**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sullivan, J. P. LERC/Mitchell, G. A. 41-Aero Engr

NGL 15-005-140 **Purdue University** **2601**
 Origin of chondrites from relationships between fourteen key trace elements
Period *Obligations*
 06/21/71-02/26/83 **FY82: \$26,823** **TOTAL: \$657,757**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lipschutz, M. E. HQ-EL/Taylor, L. A. 32-Geological Sci
 HQ-EL/Quaide, W. L.

NSG 3185 **Purdue University** **2608**
 Analytical and experimental study on impact damage of laminated composites
Period *Obligations*
 10/31/77-12/31/81 **FY82:** **TOTAL: \$150,186**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sun, C. T. LERC/Chamis, C. C. 41-Aero Engr

NSG 1635 **Purdue University** **2602**
 Multiple level techniques for computational fluid dynamics
Period *Obligations*
 08/20/79-10/31/80 **FY82:** **TOTAL: \$27,905**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McCarthy, D. R. LARC/Swanson, R. C. 41-Aero Engr
 LARC/Klunker, B. E.

NSG 3213 **Purdue University** **2609**
 Fuel sprays in high-speed air flows
Period *Obligations*
 09/01/78-11/30/82 **FY82: \$60,296** **TOTAL: \$264,961**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lefebvre, A. H. LERC/Bosque, M. A. 41-Aero Engr
 Skifstad, J. G.

**NASA'S UNIVERSITY PROGRAM
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NSG 3258 **Purdue University** **2610**
Atomization of broad-specification aircraft fuels
Period *Obligations*
05/15/79-11/30/82 **FY82: \$19,993** **TOTAL: \$177,984**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shifstad, J. G. LERC/Haggard, J. B. 46-Mech Engr
Lefebvre, A. H.

NSG 3285 **Purdue University** **2611**
Three-dimensional aerodynamic turbomachines
Period *Obligations*
07/01/79-06/28/83 **FY82: \$80,000** **TOTAL: \$458,781**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fleeter, S. LERC/Boldman, D. R. 41-Aero Engr

NSG 5414 **Purdue University** **2612**
A quantitative application-oriented evaluation of thematic mapper design specifications
Period *Obligations*
10/01/79-08/31/82 **FY82:** **TOTAL: \$104,607**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Landgrebe, D. A. GSFC/Gordon, F. 99-Multi-Discip
Swain, P. H.

NSG 7278 **Purdue University** **2613**
Characterization and elucidation of the mechanism of mechanical stress inhibition of plant growth
Period *Obligations*
10/01/76-09/30/82 **FY82: \$49,000** **TOTAL: \$213,476**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mitchell, C. A. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 2-35 **University of Notre Dame** **2614**
Zero modules and inverse system design
Period *Obligations*
04/01/80-06/30/83 **FY82: \$16,650** **TOTAL: \$47,536**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sain, M. K. ARC/Meyer, G. 49-Engr, NEC

NCC 2-147 **University of Notre Dame** **2615**
Calculations of absolute intensities of transition relevant to the photodiagnosics of combustion
Period *Obligations*
09/01/81-10/31/82 **FY82:** **TOTAL: \$65,618**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huo, W. M. ARC/Jaffe, R. L. 12-Chemistry
Schuler, R. H.

NSG 1419 **University of Notre Dame** **2616**
Structure of separated flow regions occurring near the leading edge of air foils including transition
Period *Obligations*
06/01/77-10/31/82 **FY82: \$40,282** **TOTAL: \$188,228**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, T. J. LARC/Somers, D. M. 41-Aero Engr

NSG 3048 **University of Notre Dame** **2617**
Alternatives for jet engine control
Period *Obligations*
03/01/75-09/27/83 **FY82: \$70,000** **TOTAL: \$373,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sain, M. K. LERC/Seldner, K. 45-Elec Engr

NSG 3195 **University of Notre Dame** **2618**
Study of aerodynamic mechanism for noise generated by rotor-stator interaction
Period *Obligations*
05/01/78-09/16/83 **FY82:** **TOTAL: \$170,298**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Atassi, H. LERC/Groenewaga, J. 13-Physics

IOWA

NAS 8-33728 **Drake University** **2619**
Assess use and development of a computer code rotating flows
Period *Obligations*
03/17/80-04/30/83 **FY82: \$30,173** **TOTAL: \$76,458**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kopicky, K. J. MSFC/Fowlis, W. W. 19-Phys Sci, NEC

NAG 2-30 **Iowa State University** **2620**
Low-speed, high-lift aerodynamics
Period *Obligations*
03/01/80-10/31/82 **FY82: \$10,000** **TOTAL: \$40,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
James, W. D. ARC/Olson, L. E. 41-Aero Engr

NAG 2-106 **Iowa State University** **2621**
Experimental study of unsteady turbulent boundary layers
Period *Obligations*
02/01/81-04/30/82 **FY82:** **TOTAL: \$22,398**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cook, W. J. ARC/Presley, L. L. 41-Aero Engr

NAG 2-113 **Iowa State University** **2622**
A statistical study of the progress in the search of nearby stars of unseen stellar and planetary companions
Period *Obligations*
05/01/81-04/30/82 **FY82:** **TOTAL: \$4,602**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Russell, J. L. ARC/Black, D. C. 11-Astronomy

NAG 2-151 **Iowa State University** **2623**
Modeling of windblown dust on Mars and Venus
Period *Obligations*
01/01/82-12/31/82 **FY82: \$14,325** **TOTAL: \$14,325**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Iverson, J. D. ARC/Pollack, J. B. 19-Phys Sci, NEC
ARC/Summers, A. L.

**NASA'S UNIVERSITY PROGRAM
IOWA (Continued)**

NAG 2-152 Iowa State University 2624
Application of viscous-inviscid interaction methods to transonic turbulent flows
Period 11/01/81-01/31/83 *Obligations* FY82: \$31,865 TOTAL: \$31,865
Prin. Invest. Pletcher, R. H. *NASA Tech. Officer* ARC/Murphy, J. D. *CASE Category* 41-Aero Engr
ARC/King, L. S.

NAG 5-104 Iowa State University 2625
Energetic study of the Goddard laboratory for atmospheric sciences general circulation model
Period 04/01/80-05/31/83 *Obligations* FY82: \$50,000 TOTAL: \$100,096
Prin. Invest. Chen, T. C. *NASA Tech. Officer* GSFC/Shukla, J. *CASE Category* 31-Atmos Sci

NAG 5-172 Iowa State University 2626
Radial velocity studies: White dwarf systems
Period 05/01/81-04/30/82 *Obligations* FY82: TOTAL: \$805
Prin. Invest. Beavers, W. I. *NASA Tech. Officer* GSFC/Boggess, A. *CASE Category* 11-Astronomy

NAG 8-338 Iowa State University 2627
Radio sources near COS-B Y-ray sources
Period 03/17/80-06/30/82 *Obligations* FY82: TOTAL: \$4,001
Prin. Invest. Lamb, R. C. *NASA Tech. Officer* MSFC/Jones, T. B. *CASE Category* 11-Astronomy
Market, T. H.

NAG 8-360 Iowa State University 2628
Follow-up study of CG284-1 region. Follow-up study of CG2-95+0 region. Timing studies of X-ray sources possibly linked to X-ray sources
Period 06/20/80-06/30/83 *Obligations* FY82: TOTAL: \$17,948
Prin. Invest. Lamb, R. C. *NASA Tech. Officer* MSFC/Stone, J. F. *CASE Category* 11-Astronomy

NAG 8-426 Iowa State University 2629
HRI study of KES 27 and W 28 two similar super nova remnants which may be gamma ray sources
Period 01/01/82-12/31/82 *Obligations* FY82: \$6,159 TOTAL: \$6,159
Prin. Invest. Lamb, R. C. *NASA Tech. Officer* MSFC/Stone, J. F. *CASE Category* 11-Astronomy
Markert, T. H.

NAS 8-33334 Iowa State University 2630
Supernova remnants near COS-B gamma ray sources
Period 02/13/79-04/30/81 *Obligations* FY82: TOTAL: \$13,671
Prin. Invest. Lamb, R. C. *NASA Tech. Officer* MSFC/Jones, J. B., Jr. *CASE Category* 11-Astronomy

NCA 2-34002 Iowa State University 2631
Theoretical models for the abundances of volatile materials in the atmospheres of the terrestrial planets and models of the interiors of Saturn, Uranus, and Neptune
Period 02/01/80-04/30/82 *Obligations* FY82: TOTAL: \$47,112
Prin. Invest. Grossman, A. S. *NASA Tech. Officer* ARC/Pollack, J. B. *CASE Category* 31-Atmos Sci
Podolak, M. ARC/Reynolds, R. T.

NCA 2-340802 Iowa State University 2632
Simulation of Martian Aeolian phenomena
Period 09/01/78-12/31/81 *Obligations* FY82: TOTAL: \$23,870
Prin. Invest. Iversen, J. D. *NASA Tech. Officer* ARC/Pollack, J. B. *CASE Category* 49-Engr, NEC

NCC 1-17 Iowa State University 2633
Analysis of flows with shocks
Period 10/01/79-05/31/83 *Obligations* FY82: \$34,986 TOTAL: \$106,170
Prin. Invest. Anderson, D. A. *NASA Tech. Officer* LARC/Salas, M. D. *CASE Category* 41-Aero Engr

NCC 2-19 Iowa State University 2634
Wing/body interference flow investigation
Period 07/01/79-12/31/82 *Obligations* FY82: TOTAL: \$108,829
Prin. Invest. Vogel, J. M. *NASA Tech. Officer* ARC/Corsiglia, V. R. *CASE Category* 41-Aero Engr

NCC 2-174 Iowa State University 2635
Theoretical models for the primordial atmospheres of terrestrial planets and for the interiors of Uranus and Neptune
Period 02/01/82-01/31/83 *Obligations* FY82: \$19,631 TOTAL: \$19,631
Prin. Invest. Richardson, S. M. *NASA Tech. Officer* ARC/Pollack, J. B. *CASE Category* 19-Phys Sci, NEC
ARC/Summers, A. L.

NCC 2-200 Iowa State University 2636
Study of turbulent boundary layers in oscillating flows
Period 06/01/82-08/15/83 *Obligations* FY82: \$42,250 TOTAL: \$42,250
Prin. Invest. Cook, W. J. *NASA Tech. Officer* ARC/Presley, L. L. *CASE Category* 41-Aero Engr

NGR 16-002-038 Iowa State University 2637
Calculation of viscous compressible flow
Period 10/07/71-07/31/83 *Obligations* FY82: \$34,000 TOTAL: \$261,160
Prin. Invest. Tannehill, J. C. *NASA Tech. Officer* ARC/Rakich, J. U. *CASE Category* 41-Aero Engr

NGT 16-002-800 Iowa State University 2638
Graduate student researchers program
Period 12/01/80-11/30/82 *Obligations* FY82: TOTAL: \$22,290
Prin. Invest. Okiishi, T. H. *NASA Tech. Officer* HQ-LB/Carter, C. H. *CASE Category* 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
IOWA (Continued)**

NGT 16-002-801 Iowa State University 2639
Graduate student training program in computational fluid dynamics

<i>Period</i>	<i>Obligations</i>	
07/01/80-12/31/82	FY82: \$99,999	TOTAL: \$274,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, D. A.	HQ-RT/Graves, R. A.	41-Aero Engr

NAG 1-215 University of Iowa 2646
Design sensitivity analysis and optimization of built-up structures

<i>Period</i>	<i>Obligations</i>	
09/18/81-10/31/82	FY82:	TOTAL: \$55,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haug, E. J.	LARC/Giles, G. L.	41-Aero Engr
Benedict, R. L.	LARC/Sobieski, J.	

NSG 1372 Iowa State University 2640
Periodic analysis of large space structures

<i>Period</i>	<i>Obligations</i>	
01/01/77-09/30/82	FY82:	TOTAL: \$119,945
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewin, W.	LARC/Anderson, M. S.	49-Engr, NEC
	LARC/Pinson, L. D.	

NAG 2-110 University of Iowa 2647
Study of large scale mixing in developing wakes behind streamlined bodies

<i>Period</i>	<i>Obligations</i>	
07/01/81-03/31/83	FY82: \$44,000	TOTAL: \$95,990
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramaprian, B. R.	ARC/Marvin, J. G.	41-Aero Engr
	ARC/Brown, J. L.	

NSG 1538 Iowa State University 2641
Symbolic solution of linear differential equations

<i>Period</i>	<i>Obligations</i>	
06/01/78-06/30/82	FY82:	TOTAL: \$14,804
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Feinberg, R. B.	LARC/Shoosmith, J. N.	21-Mathematics

NAG 3-206 University of Iowa 2648
Improvement of ion thruster design by reduction of wall losses

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/30/83	FY82: \$75,000	TOTAL: \$160,986
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carpenter, R. T.	LERC/Sovey, J. S.	13-Physics

NSG 1605 Iowa State University 2642
Load deflection characteristics of inflated structures

<i>Period</i>	<i>Obligations</i>	
04/01/79-05/31/83	FY82: \$38,900	TOTAL: \$126,671
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baumgarten, J. R.	LARC/Tanner, J. A.	46-Mech Engr
Flugrad, D. R.		

NAG 3-236 University of Iowa 2649
Experiments on spin-polarized atoms

<i>Period</i>	<i>Obligations</i>	
11/15/81-11/14/82	FY82: \$70,000	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stawley, W. C.	LERC/Kerslake, W. R.	12-Chemistry

NSG 2091 Iowa State University 2643
Study of viscous cross-flow effects on cylinders at high Reynolds numbers

<i>Period</i>	<i>Obligations</i>	
07/01/75-12/31/82	FY82:	TOTAL: \$112,544
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
James, W. D.	ARC/Malcolm, G. N.	41-Aero Engr
	ARC/Chapman, G. T.	

NAG 5-118 University of Iowa 2650
Study of the properties of terrestrial auroral kilometric radiation

<i>Period</i>	<i>Obligations</i>	
10/01/80-12/31/81	FY82:	TOTAL: \$24,938
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baumback, M. M.	GSFC/Corrigan, J. P.	11-Astronomy

NAG 1-36 University of Iowa 2644
Coupling of the nitrogen-oxygen X and sulfur oxygen X cycles in the troposphere

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/83	FY82: \$56,110	TOTAL: \$159,431
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carmichael, G. R.	LARC/Fishman, J.	39-Env Sci, NEC
Peters, L. K.	LARC/Rhinehart, R. P.	

NAG 5-153 University of Iowa 2651
A search for ducted extraordinary-mode echoes

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/82	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Calvert, W.	GSFC/Wende, C. D.	31-Atmos Sci

NAG 1-195 University of Iowa 2645
Fault modeling and experiments for validating fault-tolerant computer systems

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$50,198	TOTAL: \$88,664
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Robinson, J. P.	LARC/Lupton, A. O.	22-Computer Science
Reddy, S. M.	LARC/Palumbo, D. L.	

NAG 5-225 University of Iowa 2652
Stimulated auroral kilometric radiation

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Calvert, W.	GSFC/Wales, R. O.	11-Astronomy

NAGW 190 University of Iowa 2653
Diagnostics of laboratory beam-plasma phenomena using the OSS-1/Spacelab 2 plasma diagnostics package (PDP)

<i>Period</i>	<i>Obligations</i>	
02/01/81-06/30/82	FY82:	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shawhan, S. D.	HQ-EZ/Mayr, H. G.	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
IOWA (Continued)**

NAGW 256 **University of Iowa** **2654**
Wave accessibility and ducting
Period *Obligations*
10/15/81-08/14/83 FY82: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Calvert, W. HQ-EE/Lynch, J. T. 13-Physics
HQ-EL/Evans, N.

NAS 5-24293 **University of Iowa** **2661**
Global auroral imaging at visible and ultraviolet wavelengths for the Dynamic Explorer
Period *Obligations*
07/26/77-08/31/83 FY82: TOTAL: \$1,224,195
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Fellerman, K. D. 13-Physics

NAGW 337 **University of Iowa** **2655**
Analysis of Voyager wideband plasma wave observations
Period *Obligations*
04/15/82-04/14/83 FY82: \$52,000 TOTAL: \$52,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kurth, W. S. HQ-EE/Lynch, J. T. 11-Astronomy
Gurnett, D. HQ-EE/Evans, N.

NAS 5-24294 **University of Iowa** **2662**
Plasma wave experiment for the Dynamic Explorer
Period *Obligations*
07/26/77-09/30/81 FY82: TOTAL: \$961,009
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shawhan, S. D. GSFC/Fellerman, K. D. 13-Physics

NAGW 364 **University of Iowa** **2656**
Investigation of radio emissions from planetary atmospheres
Period *Obligations*
07/01/82-06/01/83 FY82: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grabbe, C. L. HQ-EE/Benson, R. F. 13-Physics
HQ-EE/Schmerling, E. R.

NAS 5-24336 **University of Iowa** **2663**
International Sun-Earth Explorer-A experiment data reduction and analysis
Period *Obligations*
10/11/77-10/10/80 FY82: TOTAL: \$65,105
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Heppner, J. P. 13-Physics

NAS 2-6553 **University of Iowa** **2657**
Pioneer F/G data analysis-Jovian charged particles experiment
Period *Obligations*
07/21/71-09/30/81 FY82: TOTAL: \$957,281
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. ARC/Fimmel, R. O. 11-Astronomy
ARC/Dyer, J. W.

NAS 5-25530 **University of Iowa** **2664**
Data reduction and analysis for measurements of low-energy electrons and protons in the Earth's magnetosphere and the interplanetary medium
Period *Obligations*
10/01/79-10/31/82 FY82: \$64,959 TOTAL: \$200,527
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Gemmell, J. D. 13-Physics

NAS 2-11125 **University of Iowa** **2658**
Pioneer 10/11 data analysis of Jovian charged particles experiment
Period *Obligations*
10/01/81-10/31/82 FY82: \$110,000 TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vanallen, J. A. ARC/Fimmel, R. O. 42-Astro Engr
Goertz, C. K.

NAS 5-25689 **University of Iowa** **2665**
Spin scan global aurora imaging instrument experiment for Dynamics Explorer
Period *Obligations*
02/10/80-07/31/83 FY82: \$370,000 TOTAL: \$523,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Skillman, D. 41-Aero Engr

NAS 5-11279 **University of Iowa** **2659**
Solar wind plasma wave experiment for the Helios missions
Period *Obligations*
03/30/70-11/30/82 FY82: \$11,000 TOTAL: \$1,608,719
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Wales, R. O. 11-Astronomy

NAS 5-25690 **University of Iowa** **2666**
Data analysis for plasma wave instrument Dynamics Explorer
Period *Obligations*
02/10/80-07/31/83 FY82: \$145,000 TOTAL: \$272,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shawhan, S. GSFC/Skillman, D. 41-Aero Engr

NAS 5-20093 **University of Iowa** **2660**
Plasma wave experiment for International Sun-Earth Explorer spacecraft A and B
Period *Obligations*
05/20/74-02/28/82 FY82: \$91,031 TOTAL: \$2,338,276
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Corrigan, J. P. 13-Physics

NAS 5-25999 **University of Iowa** **2667**
Hardware for unified radio and plasma wave experiment International Solar Polar Mission investigation
Period *Obligations*
12/31/79-09/30/83 FY82: \$1 TOTAL: \$449,201
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Stone, R. G. 11-Astronomy
GSFC/Davis, M.

**NASA'S UNIVERSITY PROGRAM
IOWA (Continued)**

<p>NAS 5-26125 University of Iowa 2668 Interplanetary monitoring platform-J data reduction and analysis <i>Period</i> <i>Obligations</i> 04/01/80-03/31/82 FY82: TOTAL: \$60,590 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Gurnett, D. A. GSFC/Corrigan, J. P. 11-Astronomy</p>	<p>NAS 8-32807 University of Iowa 2675 Definition of instruments for an ejectable plasma diagnostics package for Spacelab 2 mission <i>Period</i> <i>Obligations</i> 10/03/77-04/30/85 FY82: \$964,000 TOTAL: \$4,230,579 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Shawhan, S. D. MSFC/Guynes, B. V. 31-Atmos Sci MSFC/Ise, R.</p>
<p>NAS 5-26257 University of Iowa 2669 International Sun Earth Explorer A and B data reduction and analysis <i>Period</i> <i>Obligations</i> 07/01/80-11/30/82 FY82: \$329,600 TOTAL: \$803,600 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Frank, L. A. GSFC/Wales, R. O. 31-Atmos Sci</p>	<p>NAS 8-33770 University of Iowa 2676 Research study entitled 'a recoverable plasma diagnostics package for spacelab' <i>Period</i> <i>Obligations</i> 07/25/80-12/31/83 FY82: TOTAL: \$1,143,562 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Shawhan, S. MSFC/Guynes, B. V. 13-Physics MSFC/Ise, R.</p>
<p>NAS 5-26425 University of Iowa 2670 Use of Magsat anomaly data for crustal structure and mineral resources in the U.S. Midcontinent <i>Period</i> <i>Obligations</i> 12/03/80-04/03/83 FY82: \$14,526 TOTAL: \$71,526 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Carmichael, R. S. GSFC/Oseroff, H. 32-Geological Sci Anderson, R. R. Clark, K. F.</p>	<p>NGL 16-001-002 University of Iowa 2677 Theoretical and experimental studies related to particles and fields associated with major bodies of solar system and with interplanetary space <i>Period</i> <i>Obligations</i> 05/23/62-12/31/83 FY82: \$150,412 TOTAL: \$5,790,608 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Van Allen, J. A. HQ-EZ/Lynch, J. T. 13-Physics HQ-EZ/Schmerling, E. R.</p>
<p>NAS 5-26819 University of Iowa 2671 Data reduction and analysis of the (ISEE) International Sun-Earth Explorers plasma wave instrument <i>Period</i> <i>Obligations</i> 03/01/82-09/31/83 FY82: \$235,969 TOTAL: \$235,969 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Gurnett, D. A. GSFC/Wales, R. O. 11-Astronomy</p>	<p>NGL 16-001-043 University of Iowa 2678 Waves in plasmas <i>Period</i> <i>Obligations</i> 03/28/67-12/31/82 FY82: \$165,000 TOTAL: \$1,402,302 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Gurnett, D. A. HQ-EZ/Lynch, J. T. 13-Physics HQ-EZ/Schmerling, E. R.</p>
<p>NAS 5-26843 University of Iowa 2672 A plasma wave investigation for the origin of plasmas in the Earth's neighborhood polar plasma laboratory <i>Period</i> <i>Obligations</i> 06/07/82-09/07/83 FY82: \$20,000 TOTAL: \$20,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Shawhan, S. D. GSFC/O'brien, J. 13-Physics</p>	<p>NSG 1499 University of Iowa 2679 Effects of misalignment on mechanical behavior of metals in creep <i>Period</i> <i>Obligations</i> 03/01/78-06/30/81 FY82: TOTAL: \$53,508 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Wu, H. C. LARC/Rummler, D. R. 47-Materials Engr</p>
<p>NAS 5-26857 University of Iowa 2673 A plasma wave investigation for the origin of plasmas in the Earth's neighborhood geomagnetic tail laboratory <i>Period</i> <i>Obligations</i> 06/07/82-09/07/83 FY82: \$20,000 TOTAL: \$20,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Gurnett, D. A. GSFC/O'brien, J. 13-Physics</p>	<p>NSG 3305 University of Iowa 2680 Development of finite differential method for internal computational fluid mechanics <i>Period</i> <i>Obligations</i> 09/01/79-03/31/83 FY82: TOTAL: \$136,459 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Chen, C. J. LERC/Johnson, G. M. 41-Aero Engr</p>
<p>NAS 5-26858 University of Iowa 2674 Conduct a definition study of the comprehensive plasmas instrument for measurement of plasma in the Earth's magnetotail <i>Period</i> <i>Obligations</i> 05/24/82-08/24/83 FY82: \$78,000 TOTAL: \$78,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Frank, M. GSFC/O'brien, J. J. 11-Astronomy</p>	<p>NSG 7632 University of Iowa 2681 Investigation of charged particle acceleration mechanisms in space plasmas <i>Period</i> <i>Obligations</i> 07/01/79-10/31/82 FY82: \$41,000 TOTAL: \$162,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Goertz, C. K. HQ-EZ/Lynch, J. T. 19-Phys Sci, NEC HQ-EZ/Schmerling, E. R.</p>

NASA'S UNIVERSITY PROGRAM

KANSAS

KANSAS

NAS 9-14899 **Kansas State University** **2682**
 Estimated winter wheat yield from crop growth predicted by LANDSAT
Period *Obligations*
 03/15/76-07/31/82 FY82: TOTAL: \$524,734
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Papike, J. J. JSC/Browne, I. D. 31-Atmos Sci

NAS 9-16457 **Kansas State University** **2683**
 Spectral input crop growth, development, and yield modeling for wheat and barley use of measured soil moisture data in crop growth development and yield estimation
Period *Obligations*
 11/01/81-10/31/82 FY82: \$383,000 TOTAL: \$383,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kanemasu, E. T. JSC/Browne, I. D. 39-Env Sci, NEC

NSG 7580 **Kansas State University** **2684**
 Geology of Libyan desert grass site, S.W. Egypt
Period *Obligations*
 03/01/79-06/30/81 FY82: TOTAL: \$2,298
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Underwood, J. R. HQ-EL/Quaide, W. L. 32-Geological Sci

NSG 7613 **Kansas State University** **2685**
 Northern plains of Mars
Period *Obligations*
 06/01/79-12/31/82 FY82: TOTAL: \$53,637
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Underwood, J. R., Jr. HQ-EL/Boyce, J. M. 32-Geological Sci

NAG 1-75 **University of Kansas** **2686**
 Development of unsteady suction analogy
Period *Obligations*
 06/16/80-03/31/83 FY82: TOTAL: \$53,472
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lan, C. E. LARC/Frink, N. T. 41-Aero Engr

NAG 1-117 **University of Kansas** **2687**
 Development of algorithms for wind direction ambiguity removal
Period *Obligations*
 01/01/81-12/31/81 FY82: TOTAL: \$39,182
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shanmugam, K. S. LARC/Schroeder, L. C. LARC/Jones, W. L. 33-Oceanography

NAG 1-134 **University of Kansas** **2688**
 A theoretical investigation of wing rocking
Period *Obligations*
 01/01/81-06/30/83 FY82: \$33,124 TOTAL: \$63,927
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lan, C. E. LARC/Gilbert, W. P. LARC/Nguyen, L. T. 41-Aero Engr

NAG 1-147 **University of Kansas** **2689**
 Effects of supersonic prop-fan velocities on acoustic structural fatigue
Period *Obligations*
 02/01/81-03/31/83 FY82: TOTAL: \$15,919
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, H. W. LARC/Childress, O. S. LARC/Mayes, W. H. 49-Engr, NEC

NAG 1-205 **University of Kansas** **2690**
 Study of advanced commuter configurations
Period *Obligations*
 08/15/81-10/14/82 FY82: TOTAL: \$84,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Roskam, J. LARC/Jernell, L. S. LARC/Johnson, J. L., Jr. 41-Aero Engr

NAG 1-282 **University of Kansas** **2691**
 Ride quality systems for commuter aircraft
Period *Obligations*
 06/28/82-12/27/82 FY82: \$9,994 TOTAL: \$9,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Downing, D. R. LARC/Williams, L. J. 41-Aero Engr

NAG 2-201 **University of Kansas** **2692**
 An inventory of state natural resources information systems
Period *Obligations*
 09/01/82-10/31/83 FY82: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Martinko, E. A. ARC/Peterson, D. L. Caron, L. M. ARC/Brass, J. A. 29-Math/Computer, NEC

NAG 3-11 **University of Kansas** **2693**
 Dynamic distortion analysis technology study
Period *Obligations*
 11/15/79-11/11/83 FY82: \$71,263 TOTAL: \$133,294
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schweikhard, W. G. LERC/Neumann, H. E. 41-Aero Engr

NAG 3-32 **University of Kansas** **2694**
 Static and dynamic non linear analysis with substructure models
Period *Obligations*
 03/01/80-05/28/83 FY82: \$32,859 TOTAL: \$88,419
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dodds, R. H. LERC/Hirschbein, M. S. LERC/Chamis, C. C. 46-Mech Engr

NAG 3-71 **University of Kansas** **2695**
 An assessment of general aviation deicing systems on contemporary airfoils
Period *Obligations*
 05/01/80-09/30/82 FY82: TOTAL: \$100,560
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kohlman, D. L. LERC/Shaw, R. J. Schweikhard, W. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
KANSAS (Continued)**

NAG 3-85	University of Kansas	2696			
Study and design of approaches for simultaneous multi axis thrust measurements of air breathing jet engines					
<i>Period</i>	<i>Obligations</i>				
07/07/80-03/30/83	FY82: \$16,869	TOTAL: \$35,949			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schweikhard, W. G.	LERC/Straight, D. M.	46-Mech Engr			
	LERC/Grey, R. E.				
NAG 3-150	University of Kansas	2697			
Evaluating performance and developing additional applications for an adaptive multibeam phased array communication system					
<i>Period</i>	<i>Obligations</i>				
01/01/81-06/30/82	FY82:	TOTAL: \$25,409			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Biggs, A. W.	LERC/Smetana, J.	45-Elec Engr			
NAG 3-273	University of Kansas	2698			
Joint Kansas University/NASA graduate researchers program					
<i>Period</i>	<i>Obligations</i>				
05/01/82-04/30/84	FY82: \$65,839	TOTAL: \$65,839			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Schweikhard, W. G.	LERC/Shaw, R. J.	41-Aero Engr			
NAG 4-5	University of Kansas	2699			
A program to evaluate a control system based on feedback of aerodynamic pressure differentials					
<i>Period</i>	<i>Obligations</i>				
08/25/80-09/05/82	FY82:	TOTAL: \$40,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Roskam, R. J.	ARC/Black, J. M.	41-Aero Engr			
NAG 4-8	University of Kansas	2700			
Investigation of the internal and external aerodynamics of cattle trucks					
<i>Period</i>	<i>Obligations</i>				
07/01/81-12/31/82	FY82:	TOTAL: \$19,825			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Muirhead, V. U.	DFRF/Saltzman, E. J.	49-Engr, NEC			
NAG 5-30	University of Kansas	2701			
Measurement of soil using remote sensing active microwave techniques					
<i>Period</i>	<i>Obligations</i>				
03/01/80-01/31/83	FY82: \$300,000	TOTAL: \$725,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulaby, F. T.	GSFC/Schmugge, T.	39-Env Sci, NEC			
Dobson, C.	GSFC/Rango, A.				
NAG 5-163	University of Kansas	2702			
Investigation of the radar response to snowpack properties					
<i>Period</i>	<i>Obligations</i>				
04/15/81-06/14/82	FY82: \$3,000	TOTAL: \$63,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulaby, F. T.	GSFC/Chang, A. T.	32-Geological Sci			
NAG 5-268	University of Kansas	2703			
Scattering models in the microwave regime					
<i>Period</i>	<i>Obligations</i>				
09/01/82-08/31/83	FY82: \$39,800	TOTAL: \$39,800			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Fung, A. K.	GSFC/Choudhury, B.	55-Agriculture Sci			
NAG 5-271	University of Kansas	2704			
Determination of the sources of radar scattering					
<i>Period</i>	<i>Obligations</i>				
09/01/82-08/31/83	FY82: \$45,255	TOTAL: \$45,255			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Moore, R. K.	GSFC/Brakke, T.	55-Agriculture Sci			
Ulaby, F.					
NAG 5-272	University of Kansas	2705			
Measuring and modeling of the dielectric properties and attenuation of vegetation					
<i>Period</i>	<i>Obligations</i>				
09/01/82-08/31/83	FY82: \$57,075	TOTAL: \$57,075			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ulaby, F. T.	GSFC/Schmugge, T.	55-Agriculture Sci			
Martin, C.					
NAGW 71	University of Kansas	2706			
The magnetic field of Jupiter					
<i>Period</i>	<i>Obligations</i>				
06/01/80-05/31/81	FY82:	TOTAL: \$20,706			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Beard, D. B.	HQ-EZ/Hadin, A. E.	19-Phys Sci, NEC			
	HQ-EZ/Schmerling, E. R.				
NAGW 187	University of Kansas	2707			
Cometary atmospheres					
<i>Period</i>	<i>Obligations</i>				
06/01/81-05/30/82	FY82:	TOTAL: \$22,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Beard, D. B.	HQ-EZ/Mayr, H. G.	19-Phys Sci, NEC			
	HQ-EZ/Schmerling, E. R.				
NAGW 217	University of Kansas	2708			
To model the magnetic field of Jupiter					
<i>Period</i>	<i>Obligations</i>				
06/01/81-05/31/83	FY82: \$24,983	TOTAL: \$44,983			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Beard, D. B.	HQ-EE/Lynch, J. T.	19-Phys Sci, NEC			
	HQ-EE/Schmerling, E. R.				
NAGW 289	University of Kansas	2709			
Numerical and observational study of charged particles motion in the mid and inner Jovian magnetosphere					
<i>Period</i>	<i>Obligations</i>				
11/01/81-02/14/83	FY82: \$30,000	TOTAL: \$30,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Armstrong, T. P.	HQ-EE/Benson, R. F.	13-Physics			
	HQ-EE/Schmerling, E. R.				

**NASA'S UNIVERSITY PROGRAM
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NAGW 334 University of Kansas 2710
C-band measurements of radar backscatter from ice
Period Obligations
03/15/82-03/14/83 FY82: \$99,096 TOTAL: \$99,096
Prin. Invest. NASA Tech. Officer CASE Category
Onstott, R. G. HQ-EE/Carder, K. L. 33-Oceanography
Moore, R. K. HQ-EE/Wilson, W. S.

NASW 3438 University of Kansas 2718
Creation of an experimental technical transfer project University of Kansas Center for Research, Incorporated
Period Obligations
01/07/81-01/06/83 FY82: TOTAL: \$97,567
Prin. Invest. NASA Tech. Officer CASE Category
Barr, B. G. HQ-ET/Ault, L. A. 46-Mech Engr
HQ-ET/Voris, R. M.

NAS 1-16363 University of Kansas 2711
Design study of technology requirements for high performance single-propeller-driven business airplanes
Period Obligations
08/26/80-09/15/82 FY82: TOTAL: \$112,165
Prin. Invest. NASA Tech. Officer CASE Category
Greeley, R. LARC/Holmes, B. J. 41-Aero Engr
Roskam, J.

NAS13-166 University of Kansas 2719
Developing and teaching short courses in state-of-the-art remote sensing techniques
Period Obligations
11/04/80-11/03/81 FY82: TOTAL: \$17,137
Prin. Invest. NASA Tech. Officer CASE Category
Martinko, E. A. NSTL/Atwell, B. H. 32-Geological Sci
Williams, T. H.

NAS 5-23777 University of Kansas 2712
Microwave remote sensing of snow
Period Obligations
11/23/76-08/09/81 FY82: TOTAL: \$150,085
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. GSFC/Rango, A. 45-Elec Engr
GSFC/Shive, J.

NCC 1-6 University of Kansas 2720
A research program to reduce interior noise in general aviation airplanes
Period Obligations
05/01/79-04/30/83 FY82: \$54,670 TOTAL: \$254,672
Prin. Invest. NASA Tech. Officer CASE Category
Roskam, J. LARC/Stephens, D. G. 41-Aero Engr

NAS 5-25807 University of Kansas 2713
Evaluation of the measurement of the microwave back-scatter coefficient with active microwave systems
Period Obligations
07/31/79-09/30/80 FY82: TOTAL: \$46,348
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. GSFC/Schmugge, T. 31-Atmos Sci

NCC 1-18 University of Kansas 2721
Investigation of optimum wing configurations with edge separation
Period Obligations
06/15/79-12/31/81 FY82: TOTAL: \$47,912
Prin. Invest. NASA Tech. Officer CASE Category
Lan, C. E. LARC/Campbell, J. F. 41-Aero Engr

NAS 5-27191 University of Kansas 2714
Study of evapotranspiration through the use of satellite data
Period Obligations
03/22/82-05/22/82 FY82: \$4,842 TOTAL: \$4,842
Prin. Invest. NASA Tech. Officer CASE Category
Kanemasy, E. T. GSFC/Schmugge, T. 13-Physics

NCC 1-51 University of Kansas 2722
C-band measurements of radar backscatter from ice
Period Obligations
03/15/81-05/31/82 FY82: TOTAL: \$77,037
Prin. Invest. NASA Tech. Officer CASE Category
Onstott, R. G. LARC/Grantham, W. L. 39-Env Sci, NEC
Moore, R. K.

NAS 9-15421 University of Kansas 2715
Radar measurements in agricultural applications
Period Obligations
10/01/77-11/30/82 FY82: \$50,000 TOTAL: \$487,620
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. JSC/Paris, J. F. 31-Atmos Sci

NCC 2-92 University of Kansas 2723
Investigation of variable camber devices for helicopter rotor systems
Period Obligations
06/01/80-06/30/83 FY82: \$32,243 TOTAL: \$91,243
Prin. Invest. NASA Tech. Officer CASE Category
Fortin, P. ARC/Stroub, R. H. 41-Aero Engr
Awani, A. ARC/Young, L. A.

NAS 9-16419 University of Kansas 2716
Study simulation of spaceborne microwave soil moisture sensing
Period Obligations
08/19/81-07/15/82 FY82: TOTAL: \$49,950
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. JSC/Paris, J. F. 32-Geological Sci

NCC 2-107 University of Kansas 2724
Development of methodology for computer aided design and manufacture of wind tunnel model components
Period Obligations
12/15/80-09/30/83 FY82: \$41,500 TOTAL: \$82,500
Prin. Invest. NASA Tech. Officer CASE Category
Schweikhard, W. D. ARC/Cozzolongo, J. V. 41-Aero Engr

NAS 9-16709 University of Kansas 2717
Ground scatterometer cross-calibration
Period Obligations
08/01/82-01/31/83 FY82: \$40,000 TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Ulaby, F. T. JSC/Nuss, R. W. 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
KANSAS (Continued)**

NCC 2-110	University of Kansas	2725
Calibration laboratory developments for propulsion simulators		
<i>Period</i>	<i>Obligations</i>	
12/15/80-09/30/83	FY82:	TOTAL: \$82,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schweikhard, W. G.	ARC/Harper, M. ARC/Bailey, R. O.	41-Aero Engr
NCC 2-112	University of Kansas	2726
Investigation of the performance improvements with the free-tip rotor on helicopters		
<i>Period</i>	<i>Obligations</i>	
12/01/80-08/31/83	FY82: \$63,905	TOTAL: \$93,816
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fortin, P. E. Van Aken, J. M.	ARC/Stroub, R. H. ARC/Young, L.	41-Aero Engr
NCC 2-175	University of Kansas	2727
Investigation of a free-tip rotor configuration		
<i>Period</i>	<i>Obligations</i>	
02/01/82-01/31/83	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kumagi, H.	ARC/Stroub, R. H. ARC/Johnson, W.	41-Aero Engr
NCC 4-3	University of Kansas	2728
Graduate research in aeronautical flight test techniques		
<i>Period</i>	<i>Obligations</i>	
12/15/80-02/14/83	FY82: \$100,000	TOTAL: \$164,451
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schweikhard, W. G.	DFRF/Ayers, T. G. DFRF/Washington, H. P.	41-Aero Engr
NCC 9-4	University of Kansas	2729
Crop identification and crop condition assessment for the firex/samex program		
<i>Period</i>	<i>Obligations</i>	
06/01/82-11/30/82	FY82: \$99,500	TOTAL: \$99,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ulaby, F. T.	JSC/Paris, J.	39-Env Sci, NEC
NGL 17-004-024	University of Kansas	2730
Research on the applications of satellite remote sensing		
<i>Period</i>	<i>Obligations</i>	
04/06/72-03/31/85	FY82: \$140,000	TOTAL: \$1,340,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barr, B. G.	HQ-EL/Tuyahov, A. J.	39-Env Sci, NEC
NSG 1397	University of Kansas	2731
Remote sensing of oceans		
<i>Period</i>	<i>Obligations</i>	
02/15/77-04/30/82	FY82:	TOTAL: \$211,969
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moore, R. K. Fung, A. K.	LARC/Schroeder, L. C.	33-Oceanography
NSG 1629	University of Kansas	2732
An investigation of vortex induced aerodynamic characteristics of supersonic cruise configurations		
<i>Period</i>	<i>Obligations</i>	
06/16/79-12/31/82	FY82: \$28,613	TOTAL: \$74,337
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lan, C. E.	LARC/Lamar, J. E. LARC/Campbell, J. F.	41-Aero Engr
NSG 1633	University of Kansas	2733
Analysis of performance and handling qualities considerations for wake modification devices on agricultural aircraft		
<i>Period</i>	<i>Obligations</i>	
09/01/79-10/31/83	FY82: \$37,586	TOTAL: \$93,016
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roskam, J.	LARC/Holmes, B. J.	41-Aero Engr
NSG 3290	University of Kansas	2734
Self consistent numerical simulation of plasma insulator interactions in space		
<i>Period</i>	<i>Obligations</i>	
08/16/79-10/30/83	FY82: \$69,013	TOTAL: \$202,571
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Enoch, J. Wiseman, G. G.	LERC/Purvis, C. K. LERC/Stevens, N. J.	13-Physics
NSG 4008	University of Kansas	2735
Analysis of structural components for ultra high speed aircraft		
<i>Period</i>	<i>Obligations</i>	
05/01/76-12/31/82	FY82: \$5,000	TOTAL: \$45,416
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, H. Lameris, J.	ARC/Jenkins, J. M. ARC/Schuster, L. S.	41-Aero Engr
NSG 4019	University of Kansas	2736
Study of new flight test techniques		
<i>Period</i>	<i>Obligations</i>	
01/22/79-03/31/83	FY82: \$34,993	TOTAL: \$240,603
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roskam, J. Rummer, D. I.	DFRF/Wilson, E. J. DFRF/Lawhead, A. D.	41-Aero Engr
NSG 4026	University of Kansas	2737
A system study for the application of distributed processors to flight testing techniques		
<i>Period</i>	<i>Obligations</i>	
07/01/79-09/30/82	FY82:	TOTAL: \$165,696
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kelley, G. L.	DFRF/Abbott, L. W.	45-Elec Engr
NSG 4028	University of Kansas	2738
Modeling of aircraft performance from flight test results using dynamic test techniques		
<i>Period</i>	<i>Obligations</i>	
06/01/82-04/15/83	FY82: \$17,069	TOTAL: \$17,069
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schweikhard, W. G. Yechout, T. R.	DFRF/Burcham, F. W. DFRF/Redin, P. C.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
KANSAS (Continued)**

NAG 1-114 **Wichita State University** **2739**
Theoretical and experimental studies of three dimensional flow interference and drag on general aviation aircraft

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$3,000	TOTAL: \$87,435
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wentz, W. H.	LARC/Holmes, B. J.	41-Aero Engr
Ellis, D.		

NAG 3-284 **Wichita State University** **2740**
Application of electro-magnetic impulse de-icing to general aviation aircraft wings

<i>Period</i>	<i>Obligations</i>	
05/15/82-11/15/82	FY82: \$72,608	TOTAL: \$72,608
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zumwalt, G. W.	LERC/Schmidt, H. W.	41-Aero Engr
Bernhart, W.		
Schrag, R.		

NCC 1-31 **Wichita State University** **2741**
Research in engine nozzle design for a hypersonic flight vehicle

<i>Period</i>	<i>Obligations</i>	
01/01/80-01/31/82	FY82:	TOTAL: \$58,173
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zumwalt, G. W.	LARC/Weidner, J. P.	41-Aero Engr
	LARC/Watts, J. D.	

NSG 1165 **Wichita State University** **2742**
Computer and wind tunnel development of flaps and control surfaces for advanced technology general aviation airfoils

<i>Period</i>	<i>Obligations</i>	
06/01/75-01/31/81	FY82:	TOTAL: \$283,235
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wentz, W. H., Jr.	LARC/McGhee, R. J.	41-Aero Engr
	LARC/Barnwell, R. W.	

NSG 1575 **Wichita State University** **2743**
Supersonic burning in separated flow regions

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/81	FY82:	TOTAL: \$70,411
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zumwalt, G. W.	LARC/Rogers, R. C.	41-Aero Engr

NSG 3186 **Wichita State University** **2744**
Numerical modeling of magnetohydrodynamic channel flow

<i>Period</i>	<i>Obligations</i>	
03/01/78-08/14/81	FY82:	TOTAL: \$57,575
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greywall, M. S.	LERC/Smith, J. M.	21-Mathematics
	LERC/Juhasz, A. J.	

NSG 3277 **Wichita State University** **2745**
Feasibility studies of spoiler and aileron control systems for large wind turbine

<i>Period</i>	<i>Obligations</i>	
06/01/79-06/29/83	FY82: \$155,837	TOTAL: \$402,297
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wentz, W. H., Jr.	LERC/Savino, J. M.	41-Aero Engr
Schneider, M. H.		

KENTUCKY

NAG10-5 **Kentucky State University** **2746**
Conclusion of study entitled zoological effects of variations in atmospheric oxygen levels

<i>Period</i>	<i>Obligations</i>	
09/29/81-09/28/82	FY82:	TOTAL: \$40,533
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kloek, G. P.	KSC/Hoffler, G. N.	59-Life Sci, NEC

NSG 801 **Kentucky State University** **2747**
Zoological effects of variations in atmospheric oxygen levels

<i>Period</i>	<i>Obligations</i>	
02/27/74-04/28/81	FY82:	TOTAL: \$265,029
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kloek, G.	KSC/Hoffler, G. W.	59-Life Sci, NEC

NAS 9-16254 **Murray State University - Ky.** **2748**
Development of a spectroscopic method for excited molecules produced by atom recombination on shuttle tile coatings

<i>Period</i>	<i>Obligations</i>	
10/01/80-06/30/82	FY82:	TOTAL: \$9,082
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Owen, D. A.	JSC/Scott, C. D.	11-Astronomy

NAS13-177 **Murray State University - Ky.** **2749**
Conduct short course in remote sensing for state government officials

<i>Period</i>	<i>Obligations</i>	
05/01/81-12/31/81	FY82:	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weber, N. N.	NSTL/Patterson, F. A.	32-Geological Sci

NAS13-200 **Murray State University - Ky.** **2750**
Determination of the utility of remote sensing data for land use/cover analysis in the lower Appalachia region

<i>Period</i>	<i>Obligations</i>	
06/21/82-06/20/83	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weber, N. V.	NSTL/Severs, T. L.	32-Geological Sci

NAG 3-289 **Northern Kentucky University** **2751**
Spectroscopic and energy investigations of a microwave induced plasma

<i>Period</i>	<i>Obligations</i>	
05/20/82-05/19/83	FY82: \$19,975	TOTAL: \$19,975
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hawkins, C. E.	LERC/Nakanishi, S.	19-Phys Sci, NEC

NAG 3-258 **University of Kentucky** **2752**
Flame spreading in reduced gravity

<i>Period</i>	<i>Obligations</i>	
02/20/82-02/19/83	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Attenkirch, R. A.	LERC/Vento, D. M.	39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM
KENTUCKY (Continued)**

NAG 5-239 **University of Kentucky** **2753**
Research of carbon in planetary nebulae
Period *Obligations*
06/01/82-05/31/83 FY82: \$1,225 TOTAL: \$1,225
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ferland, G. J. GSFC/Kondo, Y. 11-Astronomy
Bruhweiler, F. C.

NAS 9-15452 **University of Kentucky** **2754**
Development of limb volume measuring system
Period *Obligations*
11/01/77-09/30/83 FY82: \$49,600 TOTAL: \$247,654
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bhagat, P. K. JSC/Booher, C. R. 56-Medical Sciences

NAS 9-16045 **University of Kentucky** **2755**
Prevention of space flight deconditioning by application of whole body oscillating accelerator
Period *Obligations*
01/17/80-05/31/84 FY82: TOTAL: \$43,696
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bhattacharga, A. JSC/Peck, E. E. 59-Life Sci, NEC

NASW 3367 **University of Kentucky** **2756**
Operation of a technology applications program (TAP)
Period *Obligations*
07/01/80-06/30/82 FY82: \$225,000 TOTAL: \$484,934
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strong, F. HQ-ET/Harrison, J. O. 99-Multi-Discip
HQ-ET/Ault, L. A.

NSG 1424 **University of Kentucky** **2757**
A model for methane and carbon monoxide incorporating a time-varying wind field and tropopause height
Period *Obligations*
07/01/77-06/30/83 FY82: \$34,000 TOTAL: \$157,648
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peters, L. K. LARC/Reichle, H. G., Jr. 31-Atmos Sci

NSG 2318 **University of Kentucky** **2758**
Dynamically imposed oscillating forces for preventing cardiovascular deconditioning
Period *Obligations*
05/01/78-11/30/81 FY82: TOTAL: \$166,651
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knapp, C. F. ARC/Sandler, H. 56-Medical Sciences
Bhattacharya, A.

NSG 3114 **University of Kentucky** **2759**
Study effects of buoyancy on flame spreading across beds of solid fuel
Period *Obligations*
07/01/76-12/30/82 FY82: \$9,953 TOTAL: \$165,187
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Altenkirch, R. A. LERC/Cochran, T. H. 46-Mech Engr
LERC/Labus, T. L.

NAGW 70 **University of Louisville** **2760**
Space biology research project
Period *Obligations*
06/01/80-01/31/83 FY82: \$141,250 TOTAL: \$538,964
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Musacchia, X. J. HQ-EB/Halstead, T. W. 51-Biological Sci

NAS 5-26504 **University of Louisville** **2761**
Noss computer performance studies
Period *Obligations*
02/23/81-11/09/82 FY82: \$55,219 TOTAL: \$117,116
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sheilton, R. D. GSFC/Isley, W. 22-Computer Science

NCA 2-400101 **University of Louisville** **2762**
Effect of simulated space flight on interferon production and action
Period *Obligations*
11/01/80-10/31/82 FY82: \$20,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rubertone, J. A. ARC/Mandel, A. D. 51-Biological Sci
ARC/Holton, E. R.

NSG 2325 **University of Louisville** **2763**
Renal function, water and electrolyte balance and intestinal transport in hypokinetic animals
Period *Obligations*
06/01/78-10/31/82 FY82: \$50,000 TOTAL: \$179,768
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Musacchia, X. J. ARC/Holton, E. M. 51-Biological Sci

NAS 8-34424 **Western Kentucky University** **2764**
Ray tracing of Jovian low frequency radiation
Period *Obligations*
07/10/81-08/31/83 FY82: \$18,000 TOTAL: \$37,917
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Six, N. F. MSFC/Green, J. L. 31-Atmos Sci
MSFC/Chappell, R.

NSG 5238 **Western Kentucky University** **2765**
Ultraviolet observations of high excitation planetary nebulae
Period *Obligations*
02/15/78-08/15/83 FY82: TOTAL: \$41,508
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hackney, K. R. GSFC/Bogges, A. 11-Astronomy
Hackney, R. L.
Kondo, Y.

LOUISIANA

NAG 8-2 **Grambling State University** **2766**
Turbulence in transient solar phenomena
Period *Obligations*
01/04/80-07/01/82 FY82: TOTAL: \$68,822
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cross, M. A. MSFC/Tandberghanssen, E. A.
Johnson, J. A. 13-Physics

**NASA'S UNIVERSITY PROGRAM
LOUISIANA (Continued)**

NAG 5-13 Louisiana State University - Baton Rouge 2767

The rotation and internal fluid dynamics of the Sun

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/14/82	FY82: TOTAL: \$36,202	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Endal, A. S.	GSFC/Sofia, S.	11-Astronomy

NAG 5-71 Louisiana State University - Baton Rouge 2768

Ultraviolet spectroscopy of selected astronomical sources

<i>Period</i>	<i>Obligations</i>	
07/01/80-12/31/82	FY82: \$13,100 TOTAL: \$31,100	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drilling, J. S.	GSFC/Kondo, Y.	11-Astronomy
Schoenberner, D.		

NAG 5-197 Louisiana State University - Baton Rouge 2769

Search for cataclysmic binaries continuing strongly magnetic white dwarfs

<i>Period</i>	<i>Obligations</i>	
07/01/81-12/31/82	FY82: TOTAL: \$14,900	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bond, H. E.	GSFC/Kondo, Y.	11-Astronomy

NAGW 48 Louisiana State University - Baton Rouge 2770

Electron positive ion interaction

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/82	FY82: \$40,000 TOTAL: \$120,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henry, J. W.	HQ-EL/Murphy, R. E.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAS 3-23542 Louisiana State University - Baton Rouge 2771

Shock tube study of the fuel molecular structure effects on the chemical kinetic mechanism for soot formation

<i>Period</i>	<i>Obligations</i>	
09/28/82-01/13/84	FY82: \$81,640 TOTAL: \$81,640	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frenklach, M.	LERC/Haggard, J.	43-Chem Engr

NAS13-148 Louisiana State University - Baton Rouge 2772

Technology transfer to sub-state levels of government

<i>Period</i>	<i>Obligations</i>	
05/01/80-08/31/82	FY82: \$20,000 TOTAL: \$145,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitehurst, C. A.	NSTL/Brannon, D. P.	32-Geological Sci

NGT 19-001-800 Louisiana State University - Baton Rouge 2773

Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-12/31/82	FY82: \$2,667 TOTAL: \$26,847	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rouse, L. J., Jr.	HQ-LB/Carter, C. H.	33-Oceanography

NAS 9-15950 Louisiana State University - Shreveport 2774

Development of a new noninvasive method to determine bone integrity in vivo

<i>Period</i>	<i>Obligations</i>	
09/27/79-08/31/80	FY82: TOTAL: \$8,926	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Albright, J. A.	JSC/Altchuler, S. I.	56-Medical Sciences
Saha, S.		
Anders, F.		

NAS 9-16477 Louisiana State University - Shreveport 2775

Anti-motion sickness drug research

<i>Period</i>	<i>Obligations</i>	
10/01/81-01/31/83	FY82: \$10,000 TOTAL: \$10,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wood, C. D.	JSC/Homick, J. L.	56-Medical Sciences
Manno, J.		
Bowen, J.		

NSG 7542 Louisiana State University - Shreveport 2776

Paleohydrology of Mars

<i>Period</i>	<i>Obligations</i>	
04/01/79-11/30/82	FY82: \$27,594 TOTAL: \$108,489	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nummedal, D.	HQ-EL/Boyce, J. M.	32-Geological Sci

NAG 1-162 Louisiana Tech University 2777

Study of photocatalytic effects of aqueous suspensions of platinized semiconductor materials on reaction rates of candidate redox reactions

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/82	FY82: TOTAL: \$54,046	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miles, A. M.	LARC/Byvik, C. E.	12-Chemistry
	LARC/Conway, E. J.	

NSG 7534 Northeast Louisiana University 2778

Stratigraphy and crater morphology

<i>Period</i>	<i>Obligations</i>	
02/01/79-05/14/83	FY82: \$16,000 TOTAL: \$69,406	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dehon, R.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NSG 7628 Northeast Louisiana University 2779

Detection of buried surfaces on Mars

<i>Period</i>	<i>Obligations</i>	
08/01/79-01/31/82	FY82: TOTAL: \$7,514	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dehon, R.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Quaide, W. L.	

NAG 8-4 Southern Univ & A&M College 2780

Crystal structure and catalytic properties of noble metal-rare Earth alloys

<i>Period</i>	<i>Obligations</i>	
02/19/80-08/31/82	FY82: TOTAL: \$83,670	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mohanty, R. C.	MSFC/Munaf, P. M.	13-Physics
Collins, W. E.	MSFC/Kent, M. I.	

**NASA'S UNIVERSITY PROGRAM
LOUISIANA (Continued)**

NAS 1-15335 Southern Univ & A&M College 2781
Atomic oxygen stimulated outgassing experiment for the long duration exposure facility
Period *Obligations*
04/07/78-04/15/83 FY82: TOTAL: \$50,426
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scott, R. L. LARC/Carter, D. J. 31-Atmos Sci

NASW 3344 Southern Univ & A&M College 2782
Return on automatic data processing investment
Period *Obligations*
03/14/80-09/30/82 FY82: TOTAL: \$143,011
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Willard, M. HQ-NS/Weaver, A. 22-Computer Science
HQ-NS/Rice, R.

NCC 2-33 Southern Univ & A&M College 2783
Investigation of the mechanical principles of the ballistic motion of the left ventricle
Period *Obligations*
11/01/79-08/31/81 FY82: TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ray, G. ARC/Sandler, H. 56-Medical Sciences

NAG 2-101 Tulane University 2784
Localization and histochemical and physiologic characteristics of the central emetic apparatus related to motion sickness
Period *Obligations*
03/01/81-02/28/83 FY82: \$51,000 TOTAL: \$99,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brizzee, K. R. ARC/Mehler, W. R. 56-Medical Sciences

NCA 2-800001 Tulane University 2785
Evolutionary relationships among bacteria: Thermophiles and mesophiles
Period *Obligations*
03/01/80-09/30/82 FY82: TOTAL: \$10,908
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, E. J. ARC/MacElroy, R. D. 51-Biological Sci

NSG 2139 Tulane University 2786
Localization and ultrastructural histochemical characterization of the central emetic apparatus related to motion sickness and emetic drugs in the squirrel monkey and dog
Period *Obligations*
03/01/76-02/28/81 FY82: TOTAL: \$192,755
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brizzee, K. R. ARC/Mehler, W. R. 59-Life Sci, NEC

NSG 1648 University of New Orleans 2787
Study on one and two dimensional filtering and deconvolution algorithms for a streaming array computer
Period *Obligations*
09/01/79-06/30/83 FY82: TOTAL: \$37,453
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ioup, G. E. LARC/Lambiotte, J. J., Jr.
LARC/Shoosmith, J. N. 21-Mathematics

NAG 1-271 University of Southwestern Louisiana 2788
Unified data flow model for fault tolerant
Period *Obligations*
05/01/82-04/30/83 FY82: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kavi, K. M. LARC/Lupton, A. O.
Rao, T. R. 22-Computer Science
LARC/Bavuso, S. J.

NAG 1-16 Xavier University - Louisiana 2789
Mathematical enhancement of data from scientific measuring instruments
Period *Obligations*
01/01/80-12/31/82 FY82: TOTAL: \$54,678
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ioup, J. W. LARC/Wood, G. M. 21-Mathematics

NSG 8050 Xavier University - Louisiana 2790
Solar radiation measurement project
Period *Obligations*
06/02/77-12/31/81 FY82: TOTAL: \$127,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ioup, J. MSFC/Espy, P. N. 39-Env Sci, NEC
MSFC/Kent, M. I.

MAINE

NAS 5-26574 University of Maine - Orono 2791
Provide computer time
Period *Obligations*
06/03/81-09/30/82 FY82: TOTAL: \$9,930
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Byther, T. GSFC/Imhoff, M. 22-Computer Science

NCC 1-70 University of Maine - Orono 2792
Fatigue behavior of adhesively bonded joints
Period *Obligations*
09/01/82-08/31/83 FY82: \$59,634 TOTAL: \$59,634
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mall, S. LARC/Johnson, W. S. 41-Aero Engr
LARC/Davidson, J. R.

MARYLAND

NAS 5-27366 Bowie State College 2793
Demonstration of frame based concepts
Period *Obligations*
09/30/82-09/30/83 FY82: \$17,376 TOTAL: \$17,376
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Srivastava, S. GSFC/Truszkowski, W. F.
22-Computer Science

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NCA 5-97 **Bowie State College** **2794**
 Summer Institute in Science and Technology for junior high school girls
Period *Obligations*
 04/30/80-06/30/82 **FY82:** **TOTAL: \$1,599**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Butler, O. B. GSFC/Mundy, J. 19-Phys Sci, NEC

NSG 5051 **Coppin State College** **2801**
 Research on the failure mechanism and other factors leading to reduce cycle life in aerospace nickel-cadmium cells
Period *Obligations*
 05/01/75-11/14/82 **FY82: \$14,164** **TOTAL: \$243,165**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McDermott, P. P. GSFC/Gaddy, E. M. 12-Chemistry
 GSFC/Halpert, G.

NGR 21-027-001 **Bowie State College** **2795**
 Research in cosmic ray physics
Period *Obligations*
 09/01/69-09/30/80 **FY82:** **TOTAL: \$140,428**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Walker, R. P. GSFC/Kniffen, D. A. 11-Astronomy

NAG 1-211 **Johns Hopkins University** **2802**
 Ultrasonic evaluation of orthopedic implant materials and devices
Period *Obligations*
 09/01/81-08/31/83 **FY82: \$30,000** **TOTAL: \$50,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Green, R. E., Jr. LARC/Heyman, J. S. 47-Materials Engr
 LARC/Crantrill, J. H., Jr.

NGR 21-027-004 **Bowie State College** **2796**
 Research in numerical integration
Period *Obligations*
 05/25/71-09/30/82 **FY82:** **TOTAL: \$161,872**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Srivastava, S. GSFC/Maury, J. L. 21-Mathematics

NAG 2-139 **Johns Hopkins University** **2803**
 Behavioral and biological interactions with small groups in confined microsocieties
Period *Obligations*
 11/01/81-11/30/82 **FY82: \$90,000** **TOTAL: \$90,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Brady, J. V. ARC/Patton, R. M. 62-Social Aspects
 Emurian, H. H.

NGR 21-027-010 **Bowie State College** **2797**
 Holographic gratings for spectrographic applications study of aberrations
Period *Obligations*
 05/14/73-07/31/83 **FY82: \$19,840** **TOTAL: \$153,166**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bhatia, M. S. GSFC/Caruso, A. J. 13-Physics
 GSFC/Osantowski, J. F.

NAG 5-32 **Johns Hopkins University** **2804**
 Interpretation and delineation of the Earth's gravity field
Period *Obligations*
 04/01/80-03/31/83 **FY82: \$47,013** **TOTAL: \$122,013**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Marsh, B. D. GSFC/Welker, J. 32-Geological Sci
 Fisher, G. W.

NGT 21-027-012 **Bowie State College** **2798**
 Training of undergraduate students in sciences and engineering
Period *Obligations*
 06/01/74-03/31/83 **FY82: \$46,805** **TOTAL: \$321,563**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kirksey, C. H. GSFC/Mundy, J. 99-Multi-Discip
 HQ-LC/Pohly, J. G.

NAG 5-35 **Johns Hopkins University** **2805**
 Petrologic and geophysical study of the source of long wavelength crustal magnetic anomalies
Period *Obligations*
 05/01/80-04/30/83 **FY82: \$25,000** **TOTAL: \$74,462**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Marsh, B. D. GSFC/Kouns, C. W. 32-Geological Sci
 Schlinger, C. GSFC/Thomas, H. H.

NSG 5009 **Bowie State College** **2799**
 Characterization of the physico-chemical properties of polymeric materials for aerospace flights
Period *Obligations*
 07/01/74-12/31/82 **FY82: \$73,000** **TOTAL: \$278,343**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rock, M. GSFC/Gaddy, E. M. 12-Chemistry
 Vasanth, K. L.

NAG 5-200 **Johns Hopkins University** **2806**
 Application of mixed physical statistical models
Period *Obligations*
 08/01/81-08/14/83 **FY82: \$51,937** **TOTAL: \$100,544**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Phillips, O. M. GSFC/Susskind, J. 31-Atmos Sci
 Munteanu, M. J.

NSG 5416 **Bowie State College** **2800**
 Investigation of automatic picture transmission relative to space sciences
Period *Obligations*
 10/01/79-09/30/80 **FY82:** **TOTAL: \$15,427**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kirksey, C. H. GSFC/Bailey, E. 99-Multi-Discip
 GSFC/Crome, R.

NAGW 16 **Johns Hopkins University** **2807**
 An ultraviolet imaging detector for shuttle astronomy
Period *Obligations*
 12/01/79-04/30/83 **FY82:** **TOTAL: \$115,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Moos, H. W. HQ-EZ/Weiler, E. J. 11-Astronomy
 HQ-EZ/Bogges, N. W.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAGW 154 Johns Hopkins University 2808
Investigation of composition and dynamics of the Jovian magnetosphere
Period *Obligations*
03/15/81-03/14/83 FY82: \$160,000 TOTAL: \$265,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krimigis, S. M. HQ-EE/Lynch, J. T. 13-Physics
HQ-EL/Evans, N.

NAS 6-3162 Johns Hopkins University 2815
Investigation of surface wave and turbulence phenomena associated with remote sensing
Period *Obligations*
03/18/81-05/17/82 FY82: TOTAL: \$50,244
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Phillips, O. M. GSFC/Huang, N. E. 33-Oceanography
Kitairgorodskii, S. A.

NAGW 264 Johns Hopkins University 2809
Analysis of thermal iron ions measured in the peaks of solar wind streams
Period *Obligations*
02/01/82-01/31/83 FY82: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roelof, E. C. HQ-EZ/Lynch, J. T. 19-Phys Sci, NEC
HQ-EZ/Schmerling, E. R.

NAS 8-32903 Johns Hopkins University 2816
Scientific investigations in support of the space telescope project
Period *Obligations*
02/01/78-12/31/84 FY82: TOTAL: \$151,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fastie, W. G. MSFC/O'dell, C. R. 11-Astronomy

NAGW 304 Johns Hopkins University 2810
Surface wave and turbulence phenomena associated with remote sensing
Period *Obligations*
03/18/82-03/17/83 FY82: \$61,898 TOTAL: \$61,898
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Phillips, O. M. HQ-EE/McGoldrick, L. F.
Kitairgorodskii H, S. HQ-EE/Wilson, W. S. 33-Oceanography

NAS 9-16030 Johns Hopkins University 2817
Effect of weightlessness on diurnal pattern of resin and aldosterone concentration in plasma
Period *Obligations*
01/17/80-01/31/82 FY82: TOTAL: \$36,178
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, W. G. JSC/White, T. 59-Life Sci, NEC

NAS 5-11415 Johns Hopkins University 2811
Atmosphere Explorer photoelectron and energetic particle experiment
Period *Obligations*
08/15/74-09/30/83 FY82: \$47,908 TOTAL: \$1,882,285
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doering, J. P. GSFC/Bullock, G. D. 31-Atmos Sci

NAS 9-16703 Johns Hopkins University 2818
Bedrest in healthy women: Effects of menstrual function and oral contraceptives
Period *Obligations*
07/01/82-06/30/83 FY82: \$110,000 TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fortney, S. M. JSC/Logan, J. 51-Biological Sci

NAS 5-25358 Johns Hopkins University 2812
Grating facility use
Period *Obligations*
10/01/78-12/31/82 FY82: \$6,900 TOTAL: \$68,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fastie, W. G. GSFC/Fowler, W. S. 13-Physics

NCC 5-24 Johns Hopkins University 2819
Dye laser traveling wave amplifier research
Period *Obligations*
12/01/80-12/31/82 FY82: \$45,064 TOTAL: \$89,026
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davidson, F. GSFC/Degnan, J. J. 49-Engr, NEC

NAS 5-26057 Johns Hopkins University 2813
Generate an investigation development plan and establish the preliminary interfaces between the orbiter and instrument for the far ultraviolet telescope spectrometer
Period *Obligations*
02/06/80-06/30/82 FY82: TOTAL: \$484,292
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davidson, A. F. GSFC/Young, E. W. 11-Astronomy

NGR 21-001-001 Johns Hopkins University 2820
Rocket and laboratory experiments and analysis on ultraviolet spectra of upper atmosphere
Period *Obligations*
08/01/61-02/28/83 FY82: \$305,000 TOTAL: \$6,001,126
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feldman, P. D. GSFC/Early, L. J. 11-Astronomy
Davidson, A. F. WFC/Pless, R. H.
Fastie, W. G.

NAS 5-27000 Johns Hopkins University 2814
Development phase of the Hopkins ultraviolet telescope (HUT)
Period *Obligations*
09/21/81-03/31/86 FY82: TOTAL: \$2,760,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davidson, A. F. GSFC/Young, E. 11-Astronomy

NGT 21-001-800 Johns Hopkins University 2821
Graduate student researchers program
Period *Obligations*
09/01/80-08/31/83 FY82: \$10,425 TOTAL: \$29,815
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davidson, A. F. HQ-LB/Carter, C. H. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)

NGT 21-001-980 **Johns Hopkins University** **2822**
Propagation of disturbances on the ocean surface graduate student researchers program
Period *Obligations*
09/01/80-08/31/82 FY82: TOTAL: \$23,405
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Phillips, O. HQ-LB/Carter, C. H. 13-Physics

NAG 5-14 **Morgan State University** **2829**
Evaluation of the quality of rainfall intensity estimates
Period *Obligations*
03/01/80-02/28/82 FY82: TOTAL: \$42,851
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knox, N. GSFC/Laughlin, C. R. 31-Atmos Sci
GSFC/Neil, E. A.

NGT 21-001-981 **Johns Hopkins University** **2823**
Graduate student researchers program
Period *Obligations*
06/01/81-07/31/82 FY82: TOTAL: \$8,675
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Judd, B. R. HQ-LB/Carter, C. H. 13-Physics

NAS 5-23558 **Morgan State University** **2830**
The investigation, identification, analysis and interpretation of new possibilities in transfer technology
Period *Obligations*
06/01/76-10/31/83 FY82: \$33,053 TOTAL: \$136,393
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Taylor, J. H. GSFC/Friedman, D. S. 49-Engr, NEC

NSG 1442 **Johns Hopkins University** **2824**
Intermittent/transient faults in computer systems based systems
Period *Obligations*
09/15/77-09/30/82 FY82: TOTAL: \$282,319
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Masson, G. M. LARC/Pitts, F. L. 45-Elec Engr

NGT 21-025-080 **Morgan State University** **2831**
The 10th summer research participation program
Period *Obligations*
04/01/80-06/30/83 FY82: \$19,200 TOTAL: \$178,550
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Proctor, N. K. GSFC/Mundy, J. R. 99-Multi-Discip
HQ-LC/Pohly, J. G.

NSG 2303 **Johns Hopkins University** **2825**
Experiments on sheared or strained turbulence
Period *Obligations*
02/01/78-07/31/82 FY82: TOTAL: \$157,498
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Corrsin, S. ARC/Rubetin, M. W. 41-Aero Engr

NSG 5074 **Morgan State University** **2832**
Research calibration of photographic and spectrographic films
Period *Obligations*
10/01/75-04/30/83 FY82: \$28,013 TOTAL: \$147,889
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hammond, E. C., Jr. GSFC/Baker, G. R. 11-Astronomy

NSG 5393 **Johns Hopkins University** **2826**
Studies of the ultraviolet spectra of astronomical sources
Period *Obligations*
07/01/79-01/31/83 FY82: \$41,150 TOTAL: \$152,050
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moos, H. W. GSFC/Kondo, Y. 11-Astronomy
Durrance, S. T.
Feldman, P. D.

NSG 5401 **Morgan State University** **2833**
Research of high temperature solar converter
Period *Obligations*
08/01/79-06/30/82 FY82: TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oliver, F. W. GSFC/Duncan, C. H. 31-Atmos Sci
Ascher, G.

NSG 7055 **Johns Hopkins University** **2827**
Satellite data analysis
Period *Obligations*
01/01/74-12/31/82 FY82: \$100,000 TOTAL: \$679,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Potemra, T. A. HQ-EE/Lynch, J. T. 13-Physics
HQ-EE/Schmerling, E. R.

NAG 5-267 **Towson State University** **2834**
External-to-conceptual mapping construction for database uniformation
Period *Obligations*
09/01/82-08/31/83 FY82: \$10,493 TOTAL: \$10,493
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grant, J. H. GSFC/Smith, P. H. 22-Computer Science

NAG 5-12 **Morgan State University** **2828**
Relating thematic mapper bands to agronomics variables for soybeans and corn
Period *Obligations*
04/01/80-03/31/83 FY82: \$106,863 TOTAL: \$169,825
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fan, C. J. GSFC/Tucker, C. J. 39-Env Sci, NEC

NAG 2-100 **Univ of Maryland Baltimore Profesi School** **2835**
Gonadal steroids and muscle atrophy
Period *Obligations*
01/15/81-08/31/83 FY82: \$39,000 TOTAL: \$87,530
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Max, S. R. ARC/Ellis, S. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 1-24 University of Maryland - College Park 2836
An experimental investigation of the effects on the near wall turbulent boundary layer structure by drag reducing flat plate surface geometry changes

<i>Period</i>	<i>Obligations</i>	
01/15/80-01/14/83	FY82: \$40,000	TOTAL: \$105,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wallace, J. M.	LARC/Walsh, M. J.	41-Aero Engr
	LARC/Hefner, J. N.	

NAG 5-9 University of Maryland - College Park 2843
Research relative to the development of hydrologic models for remote sensing technology

<i>Period</i>	<i>Obligations</i>	
02/01/80-05/31/83	FY82: \$257,225	TOTAL: \$437,016
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ragan, R. M.	GSFC/Rango, A.	39-Env Sci, NEC
	GSFC/Salomonson, V. V.	

NAG 1-27 University of Maryland - College Park 2837
Design of variable structure control systems

<i>Period</i>	<i>Obligations</i>	
01/15/80-05/14/81	FY82:	TOTAL: \$39,862
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wang, S. H.	LARC/Schy, A. A.	45-Elec Engr

NAG 5-26 University of Maryland - College Park 2844
Research of sea-air-land interaction in climate modeling

<i>Period</i>	<i>Obligations</i>	
03/01/80-11/30/82	FY82: \$53,991	TOTAL: \$289,674
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baer, F.	GSFC/Halem, M.	31-Atmos Sci

NAG 1-51 University of Maryland - College Park 2838
Research in problem solving systems

<i>Period</i>	<i>Obligations</i>	
06/01/80-08/31/82	FY82:	TOTAL: \$45,839
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Minker, J.	LARC/Barker, L. K.	22-Computer Science
	LARC/Hankins, W. W.	

NAG 5-29 University of Maryland - College Park 2845
Research of penumbral surges and their physical relationships to solar flares

<i>Period</i>	<i>Obligations</i>	
04/01/80-09/30/81	FY82:	TOTAL: \$7,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schmadi, E. J.	GSFC/Wende, C.	31-Atmos Sci
	McKenna-lawlor, S.	

NAG 1-151 University of Maryland - College Park 2839
Properties of large nearly perfect crystals at very low temperatures

<i>Period</i>	<i>Obligations</i>	
02/15/81-12/31/82	FY82: \$10,000	TOTAL: \$65,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weber, J.	LARC/Singh, J. J.	13-Physics
	Richard, J. P.	
	Hypes, W. D.	

NAG 5-54 University of Maryland - College Park 2846
Studies of Seyfert and X-ray galaxies

<i>Period</i>	<i>Obligations</i>	
05/01/80-04/30/83	FY82:	TOTAL: \$21,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, A. S.	GSFC/Bogges, A.	11-Astronomy

NAG 1-230 University of Maryland - College Park 2840
Numerical study of turbulent boundary layers

<i>Period</i>	<i>Obligations</i>	
01/01/82-06/30/83	FY82: \$45,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bernard, P. S.	LARC/Bushnell, D. M.	41-Aero Engr
	LARC/Anyiwo, J.	

NAG 5-90 University of Maryland - College Park 2847
Research relative to laser and star tracking on GSFC telescopes

<i>Period</i>	<i>Obligations</i>	
07/15/80-06/30/82	FY82:	TOTAL: \$22,930
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Friskey, J. L.	31-Atmos Sci

NAG 2-28 University of Maryland - College Park 2841
Volcanic impact on stratospheric aerosol chemistry

<i>Period</i>	<i>Obligations</i>	
03/01/80-12/31/82	FY82: \$45,000	TOTAL: \$106,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zoller, W. H.	ARC/Margozzi, A. P.	31-Atmos Sci

NAG 5-99 University of Maryland - College Park 2848
Improving communications between humans and computer-directed automatic systems

<i>Period</i>	<i>Obligations</i>	
09/01/80-06/30/83	FY82: \$42,575	TOTAL: \$96,802
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rieger, C. J.	GSFC/Wallgren, K.	22-Computer Science

NAG 3-192 University of Maryland - College Park 2842
Characterization studies of deposits formed from thermally stressed jet fuels

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/30/84	FY82: \$100,000	TOTAL: \$175,611
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adler, I.	LERC/Seng, G. T.	12-Chemistry

NAG 5-133 University of Maryland - College Park 2849
Research relative to severe convective storm diagnostics

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/81	FY82:	TOTAL: \$29,877
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pitter, R. L.	GSFC/Uccellini, L. W.	39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 5-135 University of Maryland - College Park 2850
Energetic particle acceleration in solar flares
Period *Obligations*
01/01/81-12/31/83 FY82: \$25,840 TOTAL: \$125,840
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, C. C. GSFC/Ramaty, R. 13-Physics
Holmgren, H. D.

NAG 5-154 University of Maryland - College Park 2851
Research relative to automated multisensor image registration
Period *Obligations*
04/01/81-03/31/82 FY82: TOTAL: \$20,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kanal, L. N. GSFC/Ramapriyan, H. K. 31-Atmos Sci

NAG 5-169 University of Maryland - College Park 2852
Measurement of interstellar helium impinging on the Earth
Period *Obligations*
04/15/81-08/31/83 FY82: TOTAL: \$18,873
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, J. GSFC/Early, L. J. 13-Physics
Opal, C. B.
Meir, R. R.

NAG 5-203 University of Maryland - College Park 2853
Satellite sensing of air pollution and ground signatures
Period *Obligations*
09/01/81-08/31/83 FY82: \$61,100 TOTAL: \$112,692
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baer, F. GSFC/Fraser, R. S. 31-Atmos Sci
Kaufman, Y. J. GSFC/Cressy, P. J.

NAG 5-215 University of Maryland - College Park 2854
Dynamics of planetary waves and seasonal climate variations
Period *Obligations*
11/15/81-11/14/82 FY82: \$82,086 TOTAL: \$82,086
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rodenhuis, D. R. GSFC/Halem, M. 31-Atmos Sci

NAG 5-216 University of Maryland - College Park 2855
Thermodynamic and spectroscopic studies relevant to a Jovian satellite
Period *Obligations*
01/15/82-01/14/83 FY82: \$30,144 TOTAL: \$30,144
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Khanna, R. K. GSFC/Pearl, J. C. 11-Astronomy

NAG 5-222 University of Maryland - College Park 2856
High resolution spectroscopy of the oxygen molecule
Period *Obligations*
03/01/82-02/28/83 FY82: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilkerson, T. D. GSFC/Korb, C. L. 12-Chemistry

NAG 5-223 University of Maryland - College Park 2857
A stochastic snowmelt model for probabilistic decision-making
Period *Obligations*
03/01/82-02/28/83 FY82: \$29,500 TOTAL: \$29,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nccuen, R. A. GSFC/Rango, A. 45-Elec Engr
GSFC/Foster, J. L.

NAG 5-235 University of Maryland - College Park 2858
Research relative to a uniform access to distributed heterogeneous databases
Period *Obligations*
06/01/82-05/31/83 FY82: \$61,538 TOTAL: \$61,538
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jacobs, B. E. GSFC/Smith, P. H. 22-Computer Science

NAG 5-244 University of Maryland - College Park 2859
Studies of non-fragmentary ionization processes for the mass spectrometry of comets
Period *Obligations*
06/15/82-06/14/83 FY82: \$27,000 TOTAL: \$27,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coplan, M. A. GSFC/Ogilvie, K. W. 13-Physics

NAG 5-245 University of Maryland - College Park 2860
Planetary studies through interpretation of satellite data
Period *Obligations*
06/15/82-12/31/82 FY82: \$67,000 TOTAL: \$67,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Trasco, J. D. GSFC/Frey, H. 32-Geological Sci
Kundu, M. R.

NAG 5-247 University of Maryland - College Park 2861
A study of the planetary nebula
Period *Obligations*
07/15/82-07/14/83 FY82: \$3,000 TOTAL: \$3,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harrington, J. P. GSFC/Kondo, Y. 11-Astronomy
Feibelman, W. A.

NAG 5-252 University of Maryland - College Park 2862
Satellite observations of distant dusty comets
Period *Obligations*
07/01/82-06/30/83 FY82: \$5,400 TOTAL: \$5,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
A'hearn, M. F. GSFC/Kondo, Y. 11-Astronomy
Feldman, P. D.
Millis, R. L.

NAG 5-263 University of Maryland - College Park 2863
Investigation of radio frequency high waveguide laser
Period *Obligations*
08/01/82-07/31/83 FY82: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hochuli, U. E. GSFC/Degnan, J. 49-Engr, NEC

NAG 5-279 University of Maryland - College Park 2864
Research of comets as targets of opportunity
Period *Obligations*
10/01/82-09/30/83 FY82: \$2,400 TOTAL: \$2,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahearn, M. F. GSFC/Kondo, Y. 11-Astronomy
Millis, R. L.

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAG 8-15 University of Maryland - College Park 2865
Properties of large nearly perfect crystals at very low temperatures

<i>Period</i>	<i>Obligations</i>	
07/23/82-08/03/83	FY82: \$41,989	TOTAL: \$41,989
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weber, J.	MSFC/Decher, R.	13-Physics
	MSFC/Sisk, C.	

NAG 8-307 University of Maryland - College Park 2866
Optical spectroscopy studies of identification of high galactic latitude High Energy Astronomical Observatory-B X-ray sources

<i>Period</i>	<i>Obligations</i>	
02/18/80-02/17/82	FY82: \$9,500	TOTAL: \$9,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, A. S.	MSFC/Jones, J. B.	11-Astronomy

NAG 8-349 University of Maryland - College Park 2867
Studies of Crab nebula-like supernova remnants

<i>Period</i>	<i>Obligations</i>	
06/20/80-06/30/82	FY82: \$8,000	TOTAL: \$8,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, A. S.	MSFC/Swearingen, J. C.	11-Astronomy
Kundu, M. R.		

NAG 8-369 University of Maryland - College Park 2868
X-ray investigations of selected field in the old galactic supernova remnant S147

<i>Period</i>	<i>Obligations</i>	
08/15/80-08/14/81	FY82: \$7,500	TOTAL: \$7,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Erickson, W. C.	MSFC/Stone, J. F.	11-Astronomy
Angerhofer, P. E.		

NAG 8-379 University of Maryland - College Park 2869
Ionospheric density measurement by X-ray source occultation

<i>Period</i>	<i>Obligations</i>	
09/15/80-08/31/81	FY82: \$1,718	TOTAL: \$1,718
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Matthews, D. L.	MSFC/Stone, J. F.	11-Astronomy

NAG 8-429 University of Maryland - College Park 2870
X-ray study of Seyfert galaxies with extended forbidden line regions

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, A. S.	MSFC/Stone, J. F.	11-Astronomy
Ulvestad, J. S.		

NAGW 33 University of Maryland - College Park 2871
A program to develop remote sensing excellence

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/85	FY82: \$100,000	TOTAL: \$400,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ragan, R. M.	HQ-ET/Tuyahov, A. J.	39-Env Sci, NEC

NAGW 81 University of Maryland - College Park 2872
A study of discontinuities and radiation processes in solar terrestrial plasmas

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/83	FY82: \$305,000	TOTAL: \$865,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Papadopoulos, K.	HQ-EE/Butler, D. M.	13-Physics
Wu, C. S.		

NAGW 101 University of Maryland - College Park 2873
Thermal and suprathreshold ion composition studies close to the Sun

<i>Period</i>	<i>Obligations</i>	
10/01/80-10/31/82	FY82: \$82,500	TOTAL: \$270,670
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HQ-EZ/Chipman, E. C.	13-Physics

NAGW 219 University of Maryland - College Park 2874
Workshop on carbohydrate synthesis

<i>Period</i>	<i>Obligations</i>	
06/15/81-06/14/82	FY82: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	HQ-EB/Bredt, J. H.	12-Chemistry
	HQ-EB/Devincenzi, D. L.	

NAGW 226 University of Maryland - College Park 2875
The Voyager mission: Implications for planetary biology

<i>Period</i>	<i>Obligations</i>	
06/26/81-06/25/82	FY82: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NAGW 293 University of Maryland - College Park 2876
Galapagos hydrothermal vent ecologies: Possibilities for neo-giogenesis

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	HQ-EB/Gelb, D. S.	12-Chemistry
	HQ-EB/Devincenzi, D. L.	

NAS 5-20062 University of Maryland - College Park 2877
Low energy charged particles experiment for international Sun-Earth Explorer mother and heliocentric spacecraft

<i>Period</i>	<i>Obligations</i>	
05/02/74-11/30/81	FY82: \$1,221,861	TOTAL: \$1,221,861
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	GSFC/Corrigan, J. P.	13-Physics

NAS 5-23237 University of Maryland - College Park 2878
Feasibility study for infrared interferometer, spectrometer, and radiometer for Mariner/Jupiter 1977 launch

<i>Period</i>	<i>Obligations</i>	
05/09/73-04/30/82	FY82: \$9,000	TOTAL: \$133,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hanel, R. A.	GSFC/Conrath, B. J.	13-Physics

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NAS 5-23457 University of Maryland - College Park 2879
Study of application of a field neutron generator

<i>Period</i>	<i>Obligations</i>	
04/06/76-09/30/81	FY82: \$7,330	TOTAL: \$76,550
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sommer, S. E.	GSFC/Trombka, J. I.	39-Env Sci, NEC

NAS 5-26463 University of Maryland - College Park 2886
Provide scientific personnel for participation in the cooperative visitor program

<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/82	FY82:	TOTAL: \$229,549
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gal-chen, T.	GSFC/Neil, E. A.	31-Atmos Sci
	GSFC/Kreins, E. R.	

NAS 5-25472 University of Maryland - College Park 2880
International Sun-Earth Explorer 3 data interpretation services

<i>Period</i>	<i>Obligations</i>	
01/29/79-03/31/84	FY82: \$77,896	TOTAL: \$182,513
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coplan, M. A.	GSFC/Ogilvie, K. W.	11-Astronomy

NAS 5-26582 University of Maryland - College Park 2887
Study of energetic particle acceleration

<i>Period</i>	<i>Obligations</i>	
05/08/81-07/01/84	FY82: \$14,762	TOTAL: \$24,762
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eichler, D.	GSFC/Ramaty, R.	13-Physics

NAS 5-25486 University of Maryland - College Park 2881
Support to the space telescope wide field planetary camera development team

<i>Period</i>	<i>Obligations</i>	
02/01/79-10/31/82	FY82: \$25,000	TOTAL: \$129,047
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Currie, D. G.	GSFC/Fellerman, K.	31-Atmos Sci

NAS 5-26618 University of Maryland - College Park 2888
Provide workshop and report on status and future directions of computer science

<i>Period</i>	<i>Obligations</i>	
06/29/81-09/15/81	FY82:	TOTAL: \$15,548
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yeh, R. T.	GSFC/Schneoh, P. B.	45-Elec Engr
Gligon, V. D.		

NAS 5-25735 University of Maryland - College Park 2882
Interplanetary monitoring of platform-H and J spacecraft ion and electron experiment

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/82	FY82: \$40,000	TOTAL: \$227,464
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glorkler, G.	GSFC/Corrigan, J. P.	11-Astronomy

NAS 5-26649 University of Maryland - College Park 2889
Study of interconnectivity of computers

<i>Period</i>	<i>Obligations</i>	
07/22/81-07/22/82	FY82:	TOTAL: \$29,231
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Agrawala, A. K.	GSFC/Dalton, J. T.	22-Computer Science
	GSFC/Howell, D. R.	

NAS 5-25764 University of Maryland - College Park 2883
Perform research in natural human to machine interfaces for NASA mission operations data systems

<i>Period</i>	<i>Obligations</i>	
06/29/79-12/15/82	FY82: \$82,073	TOTAL: \$186,575
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rieger, C. S.	GSFC/Truszkowski, W.	99-Multi-Discip
Somet, H.		

NAS 5-26650 University of Maryland - College Park 2890
Development of university training modules and demonstration projects for joint NASA/Corps of Engineers remote sensing projects

<i>Period</i>	<i>Obligations</i>	
07/17/81-07/16/82	FY82:	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ragan, R. M.	GSFC/Gervin, J. C.	39-Env Sci, NEC

NAS 5-26098 University of Maryland - College Park 2884
Definition phase for transition radiation and ionization calorimeter (TRIC) telescope

<i>Period</i>	<i>Obligations</i>	
03/04/80-09/30/82	FY82:	TOTAL: \$55,170
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yodh, G. B.	GSFC/Ormes, J. F.	11-Astronomy

NAS 5-26654 University of Maryland - College Park 2891
Laser spectrometer

<i>Period</i>	<i>Obligations</i>	
07/15/81-07/15/82	FY82:	TOTAL: \$39,176
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilkerson, T. D.	GSFC/Dombrowski, M.	13-Physics
	GSFC/Schwemmer, G. K.	

NAS 5-26448 University of Maryland - College Park 2885
Provide services to the GSFC career development center

<i>Period</i>	<i>Obligations</i>	
01/01/81-11/30/81	FY82:	TOTAL: \$29,153
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leibowitz, Z. B.	GSFC/Menchen, D.	69-Psych, NEC

NAS 5-26739 University of Maryland - College Park 2892
Nuclear and tonic charge distribution experiment

<i>Period</i>	<i>Obligations</i>	
10/01/81-11/30/82	FY82: \$155,030	TOTAL: \$155,030
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloekler, G.	GSFC/Wales, R. O.	11-Astronomy

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NAS 5-26810 University of Maryland - College Park 2893
Self-documenting data structure study

<i>Period</i>	<i>Obligations</i>	
11/24/81-09/30/82	FY82: \$28,665	TOTAL: \$28,665
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roussopoulos, N.	GSFC/Greene, E. P.	49-Engr, NEC

NAS 5-26814 University of Maryland - College Park 2894
Software management course

<i>Period</i>	<i>Obligations</i>	
11/19/81-03/26/82	FY82: \$74,997	TOTAL: \$74,997
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yeh, R. T. Gligor, V. L.	GSFC/Nelson, R. W.	22-Computer Science

NAS 5-26856 University of Maryland - College Park 2895
Definition studies for the solar wind and superthermal ion composition studies

<i>Period</i>	<i>Obligations</i>	
05/03/82-08/03/83	FY82: \$38,000	TOTAL: \$38,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	GSFC/O'brien, J. J.	13-Physics

NAS 5-26870 University of Maryland - College Park 2896
Modeling and theoretical studies in support of origin of plasmas in the Earth's neighborhood (OPEN)

<i>Period</i>	<i>Obligations</i>	
04/23/82-07/23/83	FY82: \$29,000	TOTAL: \$29,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Papadopoulos, K.	GSFC/O'brien, J. J.	13-Physics

NAS 5-26883 University of Maryland - College Park 2897
Scientific research seminars relative to space applications

<i>Period</i>	<i>Obligations</i>	
02/01/82-01/31/83	FY82: \$250,035	TOTAL: \$250,035
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baer, F.	GSFC/Neil, E. A. GSFC/Kreins, E. R.	31-Atmos Sci

NAS 5-27378 University of Maryland - College Park 2898
A research program in software engineering and systems

<i>Period</i>	<i>Obligations</i>	
09/01/82-10/31/83	FY82: \$210,000	TOTAL: \$210,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yeh, R. T. Gligor, V. D.	GSFC/Schneck, P. B. GSFC/McGarry, F. E.	22-Computer Science

NAS 8-33798 University of Maryland - College Park 2899
Design studies for the shuttle time and frequency transfer experiment

<i>Period</i>	<i>Obligations</i>	
09/12/80-02/28/83	FY82:	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alley, C. O.	MSFC/Decher, R. MSFC/Duncan, B. J.	31-Atmos Sci

NAS 8-33822 University of Maryland - College Park 2900
Development of a superconducting gravity gradiometer

<i>Period</i>	<i>Obligations</i>	
07/23/80-01/22/84	FY82: \$191,000	TOTAL: \$448,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Paik, H. J. Richard, J. P.	MSFC/Urban, E. W. MSFC/Shriver, E. L.	31-Atmos Sci

NAS 8-34429 University of Maryland - College Park 2901
Biodegradation of materials and services for solid rocket booster

<i>Period</i>	<i>Obligations</i>	
08/04/81-08/03/82	FY82:	TOTAL: \$1,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Colwell, R.	MSFC/Scott, F. E. MSFC/Jackson, C. H.	51-Biological Sci

NAS 9-16434 University of Maryland - College Park 2902
Development of an expert system for crop labeling and classification

<i>Period</i>	<i>Obligations</i>	
09/01/81-02/28/83	FY82: \$45,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davis, L. S.	JSC/Browne, I. D.	39-Env Sci, NEC

NCA 2-420001 University of Maryland - College Park 2903
The study of ATA pases in extreme halophiles as possible evolutionary markers

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/81	FY82:	TOTAL: \$22,656
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	ARC/Hochstein, L. I.	12-Chemistry

NCA 2-420201 University of Maryland - College Park 2904
On the characterization of the ATA Pase from halobacterium saccharovorum

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/83	FY82: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ponnamperuma, C.	ARC/Hochstein, L. I.	12-Chemistry

NCA 5-28 University of Maryland - College Park 2905
Goddard introduction to engineering careers

<i>Period</i>	<i>Obligations</i>	
06/01/78-07/15/83	FY82:	TOTAL: \$37,065
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Newton, J. W.	GSFC/Chapman, J. W. GSFC/Mundy, J. R.	49-Engr, NEC

NCC 1-25 University of Maryland - College Park 2906
Airborne water vapor lidar experiment

<i>Period</i>	<i>Obligations</i>	
08/01/79-02/28/83	FY82: \$35,000	TOTAL: \$143,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilkerson, T. D.	LARC/Browell, E. V. LARC/Carter, A. F.	31-Atmos Sci

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NCC 1-41 University of Maryland - College Park 2907
Selected applications of computational aerodynamics

<i>Period</i>	<i>Obligations</i>	
05/01/80-09/30/83	FY82: \$102,302	TOTAL: \$361,415
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, J. D.	LARC/Drummond, J. P.	41-Aero Engr
	LARC/Dwoyer, D. L.	

NGR 21-002-096 University of Maryland - College Park 2914
Research in atmospheric physics

<i>Period</i>	<i>Obligations</i>	
06/21/66-10/31/82	FY82: \$63,000	TOTAL: \$1,074,186
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mathews, D. L.	GSFC/Hartle, R. E.	31-Atmos Sci
	Austing, R.	

NCC 2-208 University of Maryland - College Park 2908
Support of shuttle environment workshop

<i>Period</i>	<i>Obligations</i>	
08/15/82-11/14/82	FY82: \$7,950	TOTAL: \$7,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilkerson, T. D.	ARC/Witteborn, F. C.	11-Astronomy

NGR 21-002-199 University of Maryland - College Park 2915
Research in solar radio astronomy at short wavelengths

<i>Period</i>	<i>Obligations</i>	
04/11/69-11/30/82	FY82: \$51,000	TOTAL: \$607,656
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kundu, M. R.	HQ-EZ/Chipman, E.	13-Physics

NCC 5-9 University of Maryland - College Park 2909
Cooperative research in solar and stellar astronomy

<i>Period</i>	<i>Obligations</i>	
04/01/79-09/30/81	FY82:	TOTAL: \$143,394
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Trasco, J. D.	GSFC/Hobbs, R. W.	11-Astronomy
	Kundu, M. R.	

NGR 21-002-224 University of Maryland - College Park 2916
Research on the measurement of the charge and isotopic composition on the primary cosmic rays

<i>Period</i>	<i>Obligations</i>	
07/31/69-10/31/82	FY82: \$58,300	TOTAL: \$476,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HQ-EZ/Kaluziński, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

NGL 21-002-005 University of Maryland - College Park 2910
Theoretical research on dynamics of astrophysical plasmas including studies of structure of plasma shock waves in solar corona and their possible radio emission

<i>Period</i>	<i>Obligations</i>	
02/01/62-12/31/82	FY82: \$75,000	TOTAL: \$1,267,493
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, C. S.	HQ-EZ/Lynch, J. T.	19-Phys Sci, NEC
	HQ-EZ/Schmerling, E. R.	

NGR 21-002-291 University of Maryland - College Park 2917
Studies of charged particles in natural and laboratory environments

<i>Period</i>	<i>Obligations</i>	
01/28/71-05/15/83	FY82: \$46,459	TOTAL: \$471,039
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coplan, M. A.	GSFC/Hoffman, R. A.	13-Physics
	Moore, J. H.	GSFC/Heppner, J. P.

NGL 21-002-033 University of Maryland - College Park 2911
Theoretical and experimental studies in space sciences, including consideration of rocket probe and satellites techniques

<i>Period</i>	<i>Obligations</i>	
06/02/64-01/31/83	FY82: \$147,596	TOTAL: \$3,566,294
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Trasco, J. D.	GSFC/Donn, B.	31-Atmos Sci
	Kunda, M. R.	

NGR 21-002-316 University of Maryland - College Park 2918
Research program in charged particle detector technology

<i>Period</i>	<i>Obligations</i>	
07/01/71-03/31/83	FY82: \$651,172	TOTAL: \$4,499,570
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	GSFC/Teegarden, B. J.	13-Physics
	Ipavich, F. M.	
	Mason, G. M.	

NGR 21-002-066 University of Maryland - College Park 2912
A study of primary cosmic ray electrons, utilizing balloon-borne experiments

<i>Period</i>	<i>Obligations</i>	
11/19/65-08/31/83	FY82: \$30,000	TOTAL: \$915,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Earl, J. A.	HQ-EZ/Kaluziński, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

NGR 21-002-317 University of Maryland - College Park 2919
Chemical studies of the origin of life

<i>Period</i>	<i>Obligations</i>	
08/18/71-01/31/83	FY82: \$62,000	TOTAL: \$1,147,850
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ponnamperuma, C. A.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NGR 21-002-073 University of Maryland - College Park 2913
Experimental and theoretical investigation of plasma radiation

<i>Period</i>	<i>Obligations</i>	
04/26/66-02/28/83	FY82: \$70,000	TOTAL: \$1,090,173
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Griem, H. R.	HQ-EZ/Bogges, N. W.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NGT 21-002-254 University of Maryland - College Park 2920
Summer faculty fellowship program in research for 24 faculty members

<i>Period</i>	<i>Obligations</i>	
12/23/69-12/31/82	FY82:	TOTAL: \$991,038
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Emad, F. P.	HQ-LB/Carter, C. H.	49-Engr, NEC

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NGT 21-002-800 University of Maryland - College Park 2921
Estimation of watershed hydraulic length using remote sensing

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/82	FY82: TOTAL: \$16,100	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCuen, R. H.	HQ-LB/Carter, C. H.	44-Civil Engr

NGT 21-002-808 University of Maryland - College Park 2929
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$11,410 TOTAL: \$21,020	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kundu, M. R.	HQ-LB/Carter, C. H.	11-Astronomy

NGT 21-002-801 University of Maryland - College Park 2922
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/82	FY82: TOTAL: \$14,250	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rose, W.	HQ-LB/Carter, C. H.	11-Astronomy

NGT 21-002-809 University of Maryland - College Park 2930
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$10,500 TOTAL: \$21,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rodenhuis, D. R.	HQ-LB/Carter, C. H.	39-Env Sci, NEC

NGT 21-002-802 University of Maryland - College Park 2923
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-12/31/82	FY82: \$4,300 TOTAL: \$20,525	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wentzel, D. G.	HQ-LB/Carter, C. H.	11-Astronomy

NGT 21-002-810 University of Maryland - College Park 2931
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$9,900 TOTAL: \$19,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Coplan, M. A.	HQ-LB/Carter, C. H.	19-Phys Sci, NEC

NGT 21-002-803 University of Maryland - College Park 2924
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$6,025 TOTAL: \$24,850	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HQ-LB/Carter, C. H.	13-Physics

NGT 21-002-811 University of Maryland - College Park 2932
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$8,350 TOTAL: \$8,350	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HQ-LB/Carter, C. H.	11-Astronomy

NGT 21-002-804 University of Maryland - College Park 2925
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$7,125 TOTAL: \$23,950	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HQ-LB/Carter, C. H.	11-Astronomy

NGT 21-002-812 University of Maryland - College Park 2933
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$8,550 TOTAL: \$8,550	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gloeckler, G.	HQ-LB/Carter, C. H.	11-Astronomy

NGT 21-002-805 University of Maryland - College Park 2928
Summer faculty fellowship program

<i>Period</i>	<i>Obligations</i>	
01/01/81-09/30/82	FY82: TOTAL: \$268,414	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yeh, R. T.	HQ-LB/Carter, C. H.	19-Phys Sci, NEC

NGT 21-002-813 University of Maryland - College Park 2934
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$8,800 TOTAL: \$8,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ellis, R. F.	HQ-LB/Carter, C. H.	13-Physics

NGT 21-002-806 University of Maryland - College Park 2927
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$10,290 TOTAL: \$20,466	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sucher, J.	HQ-LB/Carter, C. H.	11-Astronomy

NGT 21-002-814 University of Maryland - College Park 2935
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$9,200 TOTAL: \$9,200	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adler, I.	HQ-LB/Carter, C. H.	13-Physics

NGT 21-002-807 University of Maryland - College Park 2928
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$10,000 TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Adler, I.	HQ-LB/Carter, C. H.	12-Chemistry

NGT 21-002-815 University of Maryland - College Park 2936
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/20/82-08/19/83	FY82: \$9,950 TOTAL: \$9,950	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, E.	HQ-LB/Carter, C. H.	41-Aero Engr

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NGT 21-002-816 University of Maryland - College Park 2937
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/18/82-05/17/83	FY82: \$10,200	TOTAL: \$10,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Park, R. L.	HQ-LB/Carter, C. H.	13-Physics

NSG 1468 University of Maryland - College Park 2938
Study of surface acoustic wave charge transfer device

<i>Period</i>	<i>Obligations</i>	
11/15/77-12/31/81	FY82:	TOTAL: \$102,669
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, H. C.	LARC/Benz, H. F.	45-Elec Engr
	LARC/Husson, C.	

NSG 1570 University of Maryland - College Park 2939
General aviation aerodynamics and dynamics

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/82	FY82: \$64,716	TOTAL: \$274,299
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winkleman, A. E.	LARC/Dicarlo, D. J.	41-Aero Engr
Anderson, J. D.	LARC/Johnson, J. L., Jr.	
Barlow, J. B.		

NSG 2378 University of Maryland - College Park 2940
Production of monoclonal antibodies to human T-cells

<i>Period</i>	<i>Obligations</i>	
04/01/79-06/30/82	FY82: \$6,795	TOTAL: \$133,349
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goldsby, R. A.	ARC/Mandel, A. D.	56-Medical Sciences

NSG 5123 University of Maryland - College Park 2941
Evaluation of software engineering disciplines

<i>Period</i>	<i>Obligations</i>	
08/01/76-02/28/83	FY82: \$83,426	TOTAL: \$412,440
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Basili, V. R.	GSFC/McGarry, F. E.	49-Engr, NEC

NSG 5172 University of Maryland - College Park 2942
Raman spectroscopy of cosmic ices and planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
04/01/77-02/28/83	FY82: \$12,567	TOTAL: \$95,182
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Khanna, R. K.	GSFC/Donn, B. D.	12-Chemistry

NSG 5209 University of Maryland - College Park 2943
Multidisciplinary research program in atmospheric science

<i>Period</i>	<i>Obligations</i>	
09/12/77-03/31/82	FY82:	TOTAL: \$1,050,197
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thompson, O. E.	GSFC/Neil, E. A.	31-Atmos Sci

NSG 5298 University of Maryland - College Park 2944
Solar gamma-ray astronomy research

<i>Period</i>	<i>Obligations</i>	
08/15/78-09/30/81	FY82:	TOTAL: \$52,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holmgren, H. D.	GSFC/Ramaty, R.	11-Astronomy

NSG 5313 University of Maryland - College Park 2945
Resonance fluorescence in atmospheric gases research

<i>Period</i>	<i>Obligations</i>	
12/01/78-04/15/83	FY82: \$79,000	TOTAL: \$439,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McIlrath, T. J.	GSFC/Heaps, W. S.	13-Physics
	GSFC/McGee, T. J.	

NSG 5320 University of Maryland - College Park 2946
Ground based solar radio observations Solar Maximum Mission

<i>Period</i>	<i>Obligations</i>	
01/15/79-02/28/83	FY82:	TOTAL: \$196,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kundu, M. R.	GSFC/Bullock, G.	31-Atmos Sci

NSG 5323 University of Maryland - College Park 2947
Research of impulse electromagnetic bursts Solar Maximum Mission

<i>Period</i>	<i>Obligations</i>	
07/01/79-04/30/81	FY82:	TOTAL: \$24,932
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tidman, D. A.	GSFC/Donley, J. L.	31-Atmos Sci

NSG 5404 University of Maryland - College Park 2948
Field aligned particle fluxes and parallel electric potential

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/31/81	FY82:	TOTAL: \$49,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lin, C. S.	GSFC/Spencer, N. W.	31-Atmos Sci
Wu, C. S.		

NSG 5408 University of Maryland - College Park 2949
Study of bow shock ions, particle accelerations and plasma instabilities

<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/82	FY82:	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, C. S.	GSFC/Corrigan, J. P.	11-Astronomy

NSG 5423 University of Maryland - College Park 2950
Geologic modeling of the Patapsco watershed, Maryland

<i>Period</i>	<i>Obligations</i>	
10/15/79-01/14/83	FY82: \$61,460	TOTAL: \$157,744
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chang, L.	GSFC/Masuoka, E. J.	32-Geological Sci
	GSFC/Labovitz, M. L.	

NSG 7046 University of Maryland - College Park 2951
Studies of the Apollo 15 and 16 orbital X-ray data

<i>Period</i>	<i>Obligations</i>	
05/01/74-03/31/83	FY82:	TOTAL: \$178,197
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roosen, J. G.	HQ-EL/Quaide, W. L.	32-Geological Sci

NSG 7322 University of Maryland - College Park 2952
Research on comets

<i>Period</i>	<i>Obligations</i>	
03/01/77-08/31/83	FY82: \$60,000	TOTAL: \$284,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A'hearn, M. F.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

**NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)**

NSG 7340 University of Maryland - College Park 2953
Spectral studies related to dissociation of hydrogen-bromine, hydrogen-chloride and bromine-oxide

<i>Period</i>	<i>Obligations</i>	
06/16/77-08/14/82	FY82: TOTAL: \$183,583	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ginter, M. L.	HQ-EB/Watson, R. T.	13-Physics
	HQ-EB/Tilford, S. G.	

NAG 6-16 University of Maryland - Eastern Shore 2960
Atmospheric nitrogen dioxide measurements based on conversion to nitric oxide

<i>Period</i>	<i>Obligations</i>	
06/22/81-10/21/81	FY82: TOTAL: \$16,256	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hung, Y. W.	GSFC/Torres, A. L.	31-Atmos Sci

NSG 7555 University of Maryland - College Park 2954
X-ray clusters of galaxies, gas dynamics and relativistic particle propagation

<i>Period</i>	<i>Obligations</i>	
03/01/79-10/31/81	FY82: TOTAL: \$40,608	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scott, J. S.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy

NAS 5-26464 University of Maryland - Eastern Shore 2961
Development of a Medas system for microcomputers

<i>Period</i>	<i>Obligations</i>	
02/18/81-02/18/83	FY82: TOTAL: \$49,951	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chapin, E. W.	GSFC/Alterescu, S.	56-Medical Sciences

NAG 5-602 University of Maryland - Eastern Shore 2955
Dispersion and instability in deep water surface waves

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$15,003 TOTAL: \$15,003	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dudis, J. J.	GSFC/Huang, N. E.	33-Oceanography
	WFC/Long, S. R.	

NCA 5-99 University of Maryland - Eastern Shore 2962
Engineering and pre-engineering activities

<i>Period</i>	<i>Obligations</i>	
06/16/82-08/15/83	FY82: \$40,000 TOTAL: \$40,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rich, S.	GSFC/Mundy, J. R.	45-Elec Engr
	GSFC/Chapman, J. W.	

NAG 5-608 University of Maryland - Eastern Shore 2956
Gas-phase-titration system for nitric oxide

<i>Period</i>	<i>Obligations</i>	
06/20/82-10/19/82	FY82: \$17,404 TOTAL: \$17,404	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hung, Y. W.	GSFC/Torres, A. L.	12-Chemistry

NCC 6-3201 University of Maryland - Eastern Shore 2963
Improvement of technical library sciences

<i>Period</i>	<i>Obligations</i>	
07/01/81-08/31/82	FY82: TOTAL: \$80,981	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, J. C.	GSFC/Foster, J. N.	99-Multi-Discip

NAG 6-3 University of Maryland - Eastern Shore 2957
Phase one: Study of microwave radiation for soil sterilization phase two: Analysis of LANDSAT data for sediment in the Chesapeake Bay

<i>Period</i>	<i>Obligations</i>	
06/01/80-07/31/81	FY82: TOTAL: \$28,085	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wutoh, J. G.	GSFC/Oberholtzer, J. D.	99-Multi-Discip

NSG 6033 University of Maryland - Eastern Shore 2964
Investigation of aspergillus flavus

<i>Period</i>	<i>Obligations</i>	
06/01/79-06/30/81	FY82: TOTAL: \$32,273	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Albano, M.	GSFC/Trafford, G. H.	51-Biological Sci

NAG 6-4 University of Maryland - Eastern Shore 2958
A survey of trace metal pollution in the lower Eastern Shore area

<i>Period</i>	<i>Obligations</i>	
07/01/80-12/31/81	FY82: TOTAL: \$10,304	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hung, Y. W.	GSFC/Trafford, G. H.	54-Env Biology

NSG 6034 University of Maryland - Eastern Shore 2965
Aquatic vascular plants and algae as potential biological components of closed ecological life support systems

<i>Period</i>	<i>Obligations</i>	
06/01/79-06/30/81	FY82: TOTAL: \$11,321	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gupta, G. C.	GSFC/Trafford, G. H.	39-Env Sci, NEC

NAG 6-6 University of Maryland - Eastern Shore 2959
Comparative analysis of Wallops wind and weather data: Wind as a power source on the Eastern Shore

<i>Period</i>	<i>Obligations</i>	
08/01/80-01/31/82	FY82: TOTAL: \$25,972	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chapin, E. W.	GSFC/Trafford, G. H.	31-Atmos Sci
	WFC/Williams, M. E.	

NSG 7470 University of Maryland - Eastern Shore 2966
Optimization of agricultural productivity in closed ecological life support systems

<i>Period</i>	<i>Obligations</i>	
07/01/78-06/30/83	FY82: TOTAL: \$60,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Joshi, J. M.	HQ-LC/Pohly, J. G.	55-Agriculture Sci

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS**

MASSACHUSETTS

NAG 2-180 **Amherst College** **2967**
Production of monoclonal antibodies to human T-cells
Period *Obligations*
07/01/82-12/31/82 FY82: \$27,205 TOTAL: \$27,205
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldsby, R. A. ARC/Mandel, A. D. 51-Biological Sci

NAG 8-330 **Amherst College** **2968**
Secular variations in pulsar temperatures
Period *Obligations*
03/01/80-02/28/81 FY82: TOTAL: \$6,906
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greenstein, G. MSFC/Jones, J. B. 11-Astronomy

NAG 2-89 **Boston College** **2969**
Dissociative recombination of O⁺, NO⁺ and N⁺
Period *Obligations*
02/01/81-02/01/83 FY82: \$40,937 TOTAL: \$77,667
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Guberman, S. L. ARC/Jaffe, R. L. 12-Chemistry

NAG 5-227 **Boston College** **2970**
Rapid variations of auroral kilometric radiation with auroras, field aligned currents and particles
Period *Obligations*
04/01/82-03/31/83 FY82: \$24,997 TOTAL: \$24,997
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Saflekos, N. A. GSFC/Wales, R. O. 11-Astronomy

NCC 2-185 **Boston College** **2971**
Solar wind in the distant heliosphere
Period *Obligations*
04/01/82-03/31/83 FY82: \$39,715 TOTAL: \$39,715
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feynman, J. ARC/Barnes, A. 13-Physics

NSG 7468 **Boston College** **2972**
Evaluate and assess the role of theorists in solar terrestrial research
Period *Obligations*
06/01/78-12/31/83 FY82: TOTAL: \$66,442
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carovillano, R. L. HQ-EZ/Birmingham, T. J. 39-Env Sci, NEC

NAG 1-276 **Boston University** **2973**
Extension of the Green's function method for unsteady supersonic aerodynamic flow
Period *Obligations*
06/01/82-05/31/83 FY82: \$43,812 TOTAL: \$43,812
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Freedman, M. I. LARC/Yates, E. C., Jr. 41-Aero Engr
LARC/Desmarais, R. N.

NAG 2-179 **Boston University** **2974**
Analytical investigation of the influence of transonic buffeting on noise
Period *Obligations*
06/01/82-11/30/83 FY82: \$81,786 TOTAL: \$81,786
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ventres, C. S. ARC/Smith, C. 39-Env Sci, NEC

NAG 5-237 **Boston University** **2975**
Propagation of geomagnetic pulsation signals
Period *Obligations*
05/01/82-04/30/83 FY82: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hughes, W. J. GSFC/Wales, R. O. 11-Astronomy

NAG 8-435 **Boston University** **2976**
Search for 511 MeV electron-positron annihilation radiation from mildly active galactic nuclei
Period *Obligations*
05/01/82-04/30/83 FY82: \$13,000 TOTAL: \$13,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marscher, A. P. MSFC/Stone, J. F. 11-Astronomy
Brecher, K.

NAGW 141 **Boston University** **2977**
The earliest occurrence and evolutionary development of microbial endoliths
Period *Obligations*
02/01/81-01/31/83 FY82: \$39,900 TOTAL: \$79,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Campbell, S. E. HQ-EB/Devincenzi, D. L. 51-Biological Sci
Golubic, S.

NAS 8-32844 **Boston University** **2978**
Use of the Space Shuttle to create plasma holes for ionospheric and radio astronomical studies
Period *Obligations*
10/01/77-09/30/85 FY82: \$22,000 TOTAL: \$116,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mendillo, M. MSFC/Guynes, B. V. 31-Atmos Sci
MSFC/Ise, R.

NGR 22-004-025 **Boston University** **2979**
Microbial contributions to the Precambrian Earth
Period *Obligations*
12/15/70-09/30/83 FY82: \$75,091 TOTAL: \$530,282
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Margulis, L. HQ-EB/Devincenzi, D. L. 32-Geological Sci
HQ-EB/Rambler, M. B.

NGR 22-004-030 **Boston University** **2980**
Compressible unsteady potential aerodynamic flow around lifting bodies having arbitrary shapes and motions
Period *Obligations*
12/08/71-12/31/82 FY82: \$43,181 TOTAL: \$745,882
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morino, L. LARC/Yates, E. C., Jr. 41-Aero Engr
LARC/Desmarais, R. N.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NGT 22-004-800 Boston University 2981
Unsteady transonic aerodynamics research
Period Obligations
09/01/80-08/31/83 FY82: \$14,907 TOTAL: \$38,492
Prin. Invest. NASA Tech. Officer CASE Category
Morino, L. HQ-LB/Carter, C. H. 41-Aero Engr

NAG 8-413 Brandeis University 2989
A search for X-ray emission from a possible hot, diffuse gas surrounding the quasar 4C32.69
Period Obligations
07/01/81-12/31/82 FY82: TOTAL: \$8,951
Prin. Invest. NASA Tech. Officer CASE Category
Wardle, J. F. MSFC/Stone, J. F. 11-Astronomy

NGT 22-004-801 Boston University 2982
Unsteady transonic aerodynamics research
Period Obligations
09/01/80-08/31/82 FY82: TOTAL: \$23,585
Prin. Invest. NASA Tech. Officer CASE Category
Morino, L. HQ-LB/Carter, C. H. 41-Aero Engr

NAS 8-33343 Brandeis University 2990
Study of the X-ray properties of ring galaxies
Period Obligations
02/22/79-12/31/82 FY82: TOTAL: \$1,000
Prin. Invest. NASA Tech. Officer CASE Category
Ghigo, F. D. MSFC/Stone, J. F. 11-Astronomy

NGT 22-004-802 Boston University 2983
Graduate student researchers program
Period Obligations
09/01/80-08/31/83 FY82: \$13,000 TOTAL: \$36,585
Prin. Invest. NASA Tech. Officer CASE Category
Morino, L. HQ-LB/Carter, C. H. 41-Aero Engr

NAS 9-15147 Brandeis University 2991
Vestibular selection criteria development
Period Obligations
09/01/76-03/01/83 FY82: \$245,600 TOTAL: \$511,178
Prin. Invest. NASA Tech. Officer CASE Category
Lackner, J. R. JSC/Hornick, J. L. 59-Life Sci, NEC

NGT 22-008-803 Boston University 2984
Graduate student researchers program
Period Obligations
06/01/81-05/31/83 FY82: \$13,000 TOTAL: \$26,000
Prin. Invest. NASA Tech. Officer CASE Category
Udelson, D. HQ-LB/Carter, C. H. 41-Aero Engr

NSG 5419 Emmanuel College 2992
Phase and amplitude scintillation modelling at equatorial and high latitudes
Period Obligations
10/01/79-12/31/82 FY82: TOTAL: \$48,000
Prin. Invest. NASA Tech. Officer CASE Category
Basu, S. GSFC/Spencer, N. W. 31-Atmos Sci
Aarons, J.

NGT 22-008-804 Boston University 2985
Graduate student researchers program
Period Obligations
06/01/82-05/31/83 FY82: \$13,000 TOTAL: \$13,000
Prin. Invest. NASA Tech. Officer CASE Category
Tseng, R. HQ-LB/Carter, C. H. 41-Aero Engr

NAG 1-55 Harvard University 2993
Sources and sinks for nitrous oxide and experimental studies of sources of atmospheric gases
Period Obligations
04/03/80-12/31/82 FY82: \$20,020 TOTAL: \$318,869
Prin. Invest. NASA Tech. Officer CASE Category
McElroy, M. B. LARC/Fishman, J. 31-Atmos Sci
Wofsy, S. C.

NGT 22-008-805 Boston University 2986
Graduate student researchers program
Period Obligations
06/01/82-05/31/83 FY82: \$13,000 TOTAL: \$13,000
Prin. Invest. NASA Tech. Officer CASE Category
Tseng, K. HQ-LC/Carter, C. H. 41-Aero Engr

NAG 5-72 Harvard University 2994
Observation of globular clusters and X-ray clusters
Period Obligations
06/01/80-05/31/82 FY82: TOTAL: \$9,791
Prin. Invest. NASA Tech. Officer CASE Category
Grindlay, J. E. GSFC/Boggess, A. 11-Astronomy
Gursky, H.
Davis, R.

NSG 1644 Boston University 2987
Noisiness and annoyance of noise-tone complexes
Period Obligations
09/01/79-10/15/82 FY82: TOTAL: \$99,259
Prin. Invest. NASA Tech. Officer CASE Category
Hellman, R. D. LARC/Powell, C. A. 69-Psych, NEC
LARC/Key, K. F.

NAG 5-144 Harvard University 2995
High resolution ultraviolet cross section measurements of ozone
Period Obligations
03/01/81-02/15/83 FY82: \$71,253 TOTAL: \$134,583
Prin. Invest. NASA Tech. Officer CASE Category
Parkinson, W. H. GSFC/Reed, E. I. 13-Physics
Freeman, D. E. HQ-EB/Watson, R. T.
Yoshino, K.

NSG 5407 Boston University 2988
Study of the propagation of geomagnetic pulsation signals
Period Obligations
09/15/79-03/31/82 FY82: TOTAL: \$44,985
Prin. Invest. NASA Tech. Officer CASE Category
Hughes, W. J. GSFC/Salmonson, V. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 5-189 **Harvard University** **2996**
Observations of variable X-ray Seyfert galaxies
Period *Obligations*
08/01/81-09/30/83 FY82: \$6,800 TOTAL: \$12,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Geller, M. J. GSFC/Kondo, Y. 11-Astronomy
Huchra, J. P.

NAGW 359 **Harvard University** **3003**
Stratospheres and tropospheres gases
Period *Obligations*
07/01/82-06/30/83 FY82: \$150,000 TOTAL: \$150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. B. HQ-EE/Chandra, S. 11-Astronomy
HQ-EE/Watson, R. T.

NAG 8-302 **Harvard University** **2997**
Collaborative studies of solar-type and other coronae from High Energy Astronomical Observatory-B
Period *Obligations*
01/21/81-07/20/81 FY82: TOTAL: \$2,733
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosner, R. MSFC/Jones, J. B. 11-Astronomy

NAS 2-10547 **Harvard University** **3004**
Fluid and electrolyte homostasis during spaceflight: Elucidation of mechanisms in a primate
Period *Obligations*
01/17/80-10/15/82 FY82: \$253,658 TOTAL: \$319,797
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore-ede, M. C. ARC/Ferandin, J. 51-Biological Sci
ARC/Connoly, J.

NAG 8-344 **Harvard University** **2998**
Special observations of WU MA stars
Period *Obligations*
03/01/80-08/31/81 FY82: TOTAL: \$7,064
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dupree, A. K. MSFC/Jones, J. B. 11-Astronomy
Noyes, R. W.
Crudace, R. G.

NAS 5-24134 **Harvard University** **3005**
Investigation of the upper atmosphere using data from AE satellites
Period *Obligations*
09/19/77-09/30/82 FY82: \$16,960 TOTAL: \$304,824
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. B. GSFC/Bullock, G. D. 31-Atmos Sci

NAG 8-445 **Harvard University** **2999**
Collaborative studies of solar-type and other coronae from the Einstein Observatory (HEAO-2)
Period *Obligations*
10/01/82-08/30/83 FY82: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosner, R. MSFC/Stone, J. F. 11-Astronomy

NAS 5-25677 **Harvard University** **3006**
Very long baseline interferometer upgrading implementation, operation and maintenance of the Harvard radio astronomy station
Period *Obligations*
05/19/80-12/31/82 FY82: TOTAL: \$154,383
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lilley, A. E. GSFC/Clark, T. 99-Multi-Discipl

NAG 9-17 **Harvard University** **3000**
Angiotensin antagonists and volume homeostasis: Studies in man, intact animals and isolated tissues
Period *Obligations*
03/06/81-03/05/83 FY82: \$45,000 TOTAL: \$86,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hollenberg, N. K. JSC/Leach, C. S. 56-Medical Sciences

NAS 5-26557 **Harvard University** **3007**
Preliminary definition phase effort for the solar irradiance spectrometer for Spacelab
Period *Obligations*
07/01/81-09/30/82 FY82: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parkinson, W. H. GSFC/Sing, M. L. 31-Atmos Sci

NAGW 2 **Harvard University** **3001**
Coronal plasma processes: Heating and energetic balance of closed coronal structures
Period *Obligations*
11/01/79-03/31/81 FY82: TOTAL: \$59,865
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vaiana, G. S. HQ-EZ/Chipman, E. 13-Physics

NAS 5-27229 **Harvard University** **3008**
Studies of continual deformation plate motion and polar motion, using geodetic data from space techniques
Period *Obligations*
08/12/82-08/12/84 FY82: \$76,000 TOTAL: \$76,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'connell, R. J. GSFC/Mead, G. D. 32-Geological Sci
England, P. C.

NAGW 79 **Harvard University** **3002**
Theoretical program in plasma and magnetohydrodynamics processes relevant to the solar corona and its analogues
Period *Obligations*
06/01/80-06/31/83 FY82: \$164,999 TOTAL: \$448,194
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosner, R. HQ-EE/Butler, D. M. 13-Physics

NAS 6-3061 **Harvard University** **3009**
Reel down/reel up technique for stratospheric and tropospheric observations
Period *Obligations*
10/15/79-12/15/82 FY82: TOTAL: \$130,942
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, J. G. GSFC/Ballance, C. W. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
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NAS 6-3182 **Harvard University** **3010**
Study of geostrophic mesoscale eddies in the North Atlantic
Period *Obligations*
05/01/81-10/31/82 **FY82:** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Robinson, A. R. GSFC/Leito, C. D. 33-Oceanography
WFC/Parro, C.

NGL 22-007-006 **Harvard University** **3017**
Theoretical and experimental studies on ultraviolet solar physics
Period *Obligations*
07/10/63-09/30/82 **FY82: \$200,000** **TOTAL: \$5,735,398**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parkinson, W. H. HQ-EZ/Chipman, E. 13-Physics

NAS 8-31374 **Harvard University** **3011**
Scientific data reduction and analysis activities ATM experiment S-054
Period *Obligations*
01/01/75-06/30/81 **FY82:** **TOTAL: \$1,149,959**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vaiana, G. S. MSFC/Snoddy, W. C. 13-Physics
MSFC/Fields, S.

NGL 22-007-069 **Harvard University** **3018**
Infrared absorption spectrophotometry of organic extractives from Precambrian sediments
Period *Obligations*
05/29/66-06/30/83 **FY82: \$43,692** **TOTAL: \$512,964**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barghoorn, E. S. HQ-EB/Devincenzi, D. L. 32-Geological Sci

NAS 8-32691 **Harvard University** **3012**
Crystal nucleation in glass-forming alloy and pure metal melts under containerless and vibrationless conditions
Period *Obligations*
06/23/78-01/22/83 **FY82: \$39,050** **TOTAL: \$199,050**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turnbull, D. MSFC/Fallon, R. A. 13-Physics
Spaepen, F. MSFC/Savage, W. H.

NGL 22-007-228 **Harvard University** **3019**
Theoretical investigation of multiphase in Jupiter interior and possible relationship to behavior of outer atmospheric layers
Period *Obligations*
12/15/71-10/31/82 **FY82: \$514,000** **TOTAL: \$2,637,223**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goody, R. M. HQ-EL/Murphy, R. E. 31-Atmos Sci
Lindzen, R. S. HQ-EL/Brunk, W. E.

NASW 2952 **Harvard University** **3013**
An atmospheric and oceanic nitrous oxide measurement program
Period *Obligations*
06/15/76-12/14/80 **FY82:** **TOTAL: \$342,235**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. HQ-EB/Toth, R. A. 33-Oceanography
Wofsy, S. C. HQ-EB/Tilford, S. G.

NGR 22-007-202 **Harvard University** **3020**
Investigations in the far ultraviolet solar spectrum
Period *Obligations*
11/05/70-09/30/81 **FY82:** **TOTAL: \$1,054,920**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parkinson, W. H. HQ-EZ/Bohlin, J. D. 11-Astronomy

NASW 3242 **Harvard University** **3014**
In-situ studies of free radicals in the Earth's stratosphere techniques
Period *Obligations*
07/05/78-03/31/83 **FY82: \$1,661,345** **TOTAL: \$5,405,345**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, J. G. HQ-EB/Seals, R. K. 31-Atmos Sci
HQ-EB/Tilford, S. G.

NGR 22-007-269 **Harvard University** **3021**
Theoretical research in planetary physics
Period *Obligations*
09/01/73-02/28/83 **FY82: \$69,000** **TOTAL: \$513,073**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cameron, A. G. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Brinton, H. C.

NCA 2-284101 **Harvard University** **3015**
A mathematical model to assess and predict the effects of imposed work-rest schedules on the circadian timing system
Period *Obligations*
06/01/81-12/31/82 **FY82: \$27,367** **TOTAL: \$47,367**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gander, P. H. ARC/Lauber, J. K. 51-Biological Sci
Kronauer, R. E.
Moore-ede, M. C.

NGR 22-007-272 **Harvard University** **3022**
Theoretical studies in space astronomy
Period *Obligations*
09/01/73-08/31/82 **FY82: \$61,104** **TOTAL: \$383,852**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cameron, A. G. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
HQ-EZ/Opp, A. G.

NCC 2-39 **Harvard University** **3016**
Identification and adaptive control of helicopter systems
Period *Obligations*
11/01/79-01/31/82 **FY82:** **TOTAL: \$86,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McKinney, P. ARC/Warmbrodt, W. 41-Aero Engr

NSG 2031 **Harvard University** **3023**
Chemistry and dynamics of trace stratospheric gases
Period *Obligations*
07/01/74-03/30/82 **FY82:** **TOTAL: \$652,645**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. B. HQ-EB/Chandra, S. 31-Atmos Sci
HQ-EB/Watson, R. T.

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NSG 2265 Harvard University 3024
Geometrical methods for nonlinear dynamics
Period Obligations
09/01/77-11/01/82 FY82: \$32,000 TOTAL: \$146,681
Prin. Invest. NASA Tech. Officer CASE Category
Byrnes, C. I. ARC/Meyer, G. 41-Aero Engr
ARC/Doolin, B. F.

NSG 9054 Harvard University 3031
Fluid and electrolyte homeostasis during spaceflight: Ground-based preparative studies in a primate
Period Obligations
02/01/77-01/31/83 FY82: \$51,160 TOTAL: \$284,160
Prin. Invest. NASA Tech. Officer CASE Category
Moore-ede, M. C. JSC/Leach, C. S. 56-Medical Sciences

NSG 5128 Harvard University 3025
Lyman alpha coronagraph research sounding rocket program
Period Obligations
07/15/76-10/31/82 FY82: \$315,000 TOTAL: \$1,780,876
Prin. Invest. NASA Tech. Officer CASE Category
Parkinson, W. H. GSFC/Early, L. J. 13-Physics
Kohl, J. L. HQ-EZ/Bohlin, J. D.

NAG 1-2 Massachusetts Institute of Technology 3032
Hybrid operator models for digitally-implemented control systems
Period Obligations
12/01/79-01/31/82 FY82: TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Stein, G. LARC/Elliott, J. R. 45-Elec Engr
LARC/Price, D. B.

NSG 5176 Harvard University 3026
Research of high resolution vacuum ultraviolet absorption cross-sections of stratospheric molecules
Period Obligations
06/01/77-05/31/83 FY82: \$81,258 TOTAL: \$370,331
Prin. Invest. NASA Tech. Officer CASE Category
Parkinson, W. H. GSFC/Reed, E. I. 13-Physics
Freeman, D. E. HQ-EE/Watson, R. T.
Yoshino, K.

NAG 1-12 Massachusetts Institute of Technology 3033
Investigation of some critical phenomena in the N-vortex system with application to large scale turbulent noise spectra
Period Obligations
11/15/79-01/31/81 FY82: TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
Young, J. E. LARC/Hardin, J. C. 13-Physics

NSG 5228 Harvard University 3027
Dynamics and evaluation of Gulf Stream meanders
Period Obligations
02/01/78-12/31/82 FY82: TOTAL: \$212,807
Prin. Invest. NASA Tech. Officer CASE Category
Robinson, A. R. GSFC/Halem, M. 33-Oceanography

NAG 1-48 Massachusetts Institute of Technology 3034
Development of single mode, high temperature continuous wave (CW) plumbum-stannaum-tellurium (PbSnTe) laser diodes
Period Obligations
03/01/80-10/31/82 FY82: TOTAL: \$150,000
Prin. Invest. NASA Tech. Officer CASE Category
Fonstad, C. G. LARC/Magee, C. J. 45-Elec Engr
LARC/Hendricks, H. D.

NSG 7176 Harvard University 3028
Participation in NASA core funding
Period Obligations
11/01/75-04/30/83 FY82: \$350,000 TOTAL: \$1,704,000
Prin. Invest. NASA Tech. Officer CASE Category
Field, G. B. HQ-E/Gaskins, M. A. 19-Phys Sci, NEC
McElroy, M. B. HQ-E/Devlin, J. F.

NAG 1-60 Massachusetts Institute of Technology 3035
Research on unsteady, three-dimensional transonic flow
Period Obligations
05/01/80-04/30/82 FY82: TOTAL: \$103,902
Prin. Invest. NASA Tech. Officer CASE Category
Harris, W. L. LARC/Bland, S. R. 41-Aero Engr
LARC/Whitlow, W.

NSG 7304 Harvard University 3029
Absolute transition probabilities in ultraviolet spectra of interstellar molecules
Period Obligations
12/15/76-02/13/83 FY82: \$56,690 TOTAL: \$281,215
Prin. Invest. NASA Tech. Officer CASE Category
Parkinson, W. H. HQ-EZ/Bogges, N. W. 31-Atmos Sci
HQ-EZ/Weiler, E. J.

NAG 1-92 Massachusetts Institute of Technology 3036
Analysis of remote measurements of carbon monoxide from Convair 990 during monsoon experiment
Period Obligations
09/01/80-12/31/81 FY82: TOTAL: \$46,000
Prin. Invest. NASA Tech. Officer CASE Category
Newell, R. E. LARC/Reichle, H. G. 31-Atmos Sci
LARC/Wallio, H. A.

NSG 7648 Harvard University 3030
Solar Maximum Mission: Ground support programs at the Harvard radio astronomy station
Period Obligations
07/01/79-12/31/82 FY82: \$65,000 TOTAL: \$217,427
Prin. Invest. NASA Tech. Officer CASE Category
Maxwell, A. HQ-EZ/Chipman, E. 13-Physics

NAG 1-98 Massachusetts Institute of Technology 3037
Photovoltaic effect in ferroelectric ceramics
Period Obligations
09/01/80-10/31/81 FY82: TOTAL: \$53,000
Prin. Invest. NASA Tech. Officer CASE Category
Epstein, D. J. LARC/Hayes, P. J. 45-Elec Engr
Linz, A.
Jenssen, H. P.

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NAG 1-100 Massachusetts Institute of Technology 3038
Microwave heating of supercooled water droplets
Period *Obligations*
09/01/80-06/30/82 FY82: TOTAL: \$73,726
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hollister, W. M. LARC/Bailey, M. C. 13-Physics

NAG 1-126 Massachusetts Institute of Technology 3039
Reliability issues in active control of large flexible space structures
Period *Obligations*
11/15/80-11/14/82 FY82: \$89,064 TOTAL: \$179,080
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vandervelde, W. E. LARC/Hanks, B. R. 41-Aero Engr
LARC/Montgomery, R. E.

NAG 1-140 Massachusetts Institute of Technology 3040
Combined applications of airborne traffic situation displays to terminal operations
Period *Obligations*
12/19/80-12/18/81 FY82: TOTAL: \$56,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Athans, M. LARC/Kelley, J. R. 41-Aero Engr
LARC/Knox, C. E.

NAG 1-164 Massachusetts Institute of Technology 3041
Study of noise, excess noise, and tunable local oscillator performance of lead-salt diode lasers
Period *Obligations*
03/15/81-07/31/83 FY82: \$75,000 TOTAL: \$150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Freed, C. LARC/Katzberg, S. J. 13-Physics
Fonstad, C. G.

NAG 1-206 Massachusetts Institute of Technology 3042
Cooperative program for stimulate student involvement through undergraduate research opportunity program
Period *Obligations*
09/01/81-11/30/82 FY82: TOTAL: \$54,948
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Covert, E. E. LARC/Kilgore, R. A. 41-Aero Engr
Murman, E. M. LARC/Boyden, R. P.
Baron, J. R.

NAG 1-229 Massachusetts Institute of Technology 3043
Computational analysis of scramjet dual mode operations
Period *Obligations*
11/01/81-10/31/82 FY82: \$51,355 TOTAL: \$51,355
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murman, E. M. LARC/Anderson, G. Y. 41-Aero Engr

NAG 1-292 Massachusetts Institute of Technology 3044
Meteorological analysis of measurement of air pollution from satellites (MAPS) first shuttle
Period *Obligations*
07/15/82-01/14/83 FY82: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Newell, R. E. LARC/Reichle, H. G., Jr. 31-Atmos Sci
LARC/Hypes, W. D.

NAG 2-12 Massachusetts Institute of Technology 3045
Research on visual vestibular interaction and its application to flight simulation
Period *Obligations*
12/01/79-11/31/82 FY82: \$109,478 TOTAL: \$256,681
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Young, L. R. ARC/Stewart, J. D. 49-Engr, NEC
Oman, C. M.
Kenyon, R.

NAG 2-47 Massachusetts Institute of Technology 3046
Development of analytical techniques for rotor aerodynamic analysis
Period *Obligations*
10/01/80-03/31/82 FY82: TOTAL: \$58,627
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, R. H. ARC/Piziali, R. A. 41-Aero Engr

NAG 2-50 Massachusetts Institute of Technology 3047
A long baseline stellar interferometer for astronomy
Period *Obligations*
08/01/80-02/28/82 FY82: \$15,000 TOTAL: \$85,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Staelin, D. H. ARC/Black, D. C. 11-Astronomy
Shao, M.

NAG 2-88 Massachusetts Institute of Technology 3048
Habituation of novel visual vestibular environments with particular reference to space flight
Period *Obligations*
01/16/81-12/16/83 FY82: \$85,000 TOTAL: \$205,014
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Young, L. R. ARC/Daunton, N. G. 51-Biological Sci

NAG 2-90 Massachusetts Institute of Technology 3049
Carbon deposition in the Bosch process with ruthenium and ruthenium-iron alloy catalysts
Period *Obligations*
01/01/81-07/31/82 FY82: TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reid, R. C. ARC/Quattrone, P. D. 59-Life Sci, NEC
Manning, M. P.

NAG 2-103 Massachusetts Institute of Technology 3050
The mutual relationship between central and peripheral vision
Period *Obligations*
03/01/81-02/28/83 FY82: \$30,000 TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kenyon, R. V. ARC/Remington, R. W. 69-Psych, NEC

NAG 2-105 Massachusetts Institute of Technology 3051
Computational methods for non-linear vortex wake flow fields
Period *Obligations*
02/15/81-02/15/83 FY82: \$48,991 TOTAL: \$98,989
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murman, E. M. ARC/Hicks, R. M. 41-Aero Engr

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NAG 2-115 Massachusetts Institute of Technology 3052
Computational methods for aerodynamic design using numerical optimization

<i>Period</i>	<i>Obligations</i>	
06/01/81-11/30/82	FY82: \$10,011	TOTAL: \$60,022
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murman, E. M.	ARC/Chapman, G. C.	41-Aero Engr
	ARC/Hicks, R. M.	

NAG 3-33 Massachusetts Institute of Technology 3059
Advanced stress analysis of turbine engine structures

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/30/83	FY82: \$70,016	TOTAL: \$195,728
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pian, T. H.	LERC/Chamis, C. C.	46-Mech Engr
	LERC/Johns, R. H.	

NAG 2-124 Massachusetts Institute of Technology 3053
Vestibulocerebellar anatomy and histochemistry: A study of neural structures underlying motion sickness

<i>Period</i>	<i>Obligations</i>	
07/01/81-12/31/82	FY82: \$31,000	TOTAL: \$81,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Graybiel, A. M.	ARC/Mehler, W. R.	56-Medical Sciences

NAG 3-82 Massachusetts Institute of Technology 3060
Development and use of generalized internal combustion engine cycle simulations

<i>Period</i>	<i>Obligations</i>	
06/23/80-12/27/83	FY82: \$173,543	TOTAL: \$253,379
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heywood, J. B.	LERC/Schock, H. J.	41-Aero Engr

NAG 2-126 Massachusetts Institute of Technology 3054
Neural mechanisms subserving head movements

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$23,000	TOTAL: \$55,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bizzi, E.	ARC/Daunton, N. G.	51-Biological Sci
	ARC/Suri, K.	

NAG 3-100 Massachusetts Institute of Technology 3061
Conceptual design of an engineering test facility super conducting magnetohydrodynamic magnet system

<i>Period</i>	<i>Obligations</i>	
08/22/80-10/15/81	FY82:	TOTAL: \$127,461
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Marston, P. G.	LERC/Burkhart, J. A.	49-Engr, NEC
Hatch, A. M.	LERC/Bercaw, R. W.	

NAG 2-132 Massachusetts Institute of Technology 3055
Effects of consuming various foods and nutrients on subjective aspects of human performance and behavior

<i>Period</i>	<i>Obligations</i>	
09/01/81-05/31/83	FY82: \$55,000	TOTAL: \$109,427
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wurtman, R. J.	ARC/Patton, R. M.	61-Biol Aspects

NAG 3-173 Massachusetts Institute of Technology 3062
Effect of gravity on minimum ignition energies of premixed gases

<i>Period</i>	<i>Obligations</i>	
04/06/81-04/05/83	FY82: \$45,962	TOTAL: \$87,962
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wachman, H. Y.	LERC/Vento, D. M.	49-Engr, NEC
Williams, G. C.		

NAG 2-182 Massachusetts Institute of Technology 3056
Correlation of experimental and theoretical results applied to a model helicopter rotor generating blade slap

<i>Period</i>	<i>Obligations</i>	
06/15/82-06/14/83	FY82: \$67,000	TOTAL: \$67,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hubbard, J. E.	ARC/Smith, C. A.	41-Aero Engr
	ARC/Warmbrodt, W.	

NAG 3-200 Massachusetts Institute of Technology 3063
Structural response of a rotating bladed dist to rotor whirl

<i>Period</i>	<i>Obligations</i>	
10/01/81-09/30/82	FY82:	TOTAL: \$70,365
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Crawley, E. F.	LERC/Kielb, R. E.	41-Aero Engr

NAG 2-190 Massachusetts Institute of Technology 3057
Airspace

<i>Period</i>	<i>Obligations</i>	
08/01/82-07/31/83	FY82: \$79,896	TOTAL: \$79,896
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R. W.	ARC/Tobias, L.	41-Aero Engr
	ARC/Erzberger, H.	

NAG 3-214 Massachusetts Institute of Technology 3064
Graduate student researchers program in rotor flutter and vibration

<i>Period</i>	<i>Obligations</i>	
09/25/81-09/23/83	FY82: \$33,131	TOTAL: \$63,127
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dugunkji, J.	LERC/Kielb, R. E.	41-Aero Engr

NAG 3-9 Massachusetts Institute of Technology 3058
Research applied to transonic compressors in numerical fluid mechanics of inviscid flow and viscous flow

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/28/82	FY82: \$118,118	TOTAL: \$284,020
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thompkins, W. T.	LERC/Chima, R. V.	41-Aero Engr
Murman, E. M.	LERC/Sockol, P. M.	

NAG 3-215 Massachusetts Institute of Technology 3065
Study of microwave properties of gallium arsenide field effect transistors

<i>Period</i>	<i>Obligations</i>	
10/15/81-10/14/82	FY82: \$52,000	TOTAL: \$52,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burke, B. F.	LERC/Connolly, D. J.	45-Elec Engr

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NAG 3-257 Massachusetts Institute of Technology 3066
Variable reluctance motors for electric vehicle propulsion systems

<i>Period</i>	<i>Obligations</i>	
02/05/82-02/04/83	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lang, J. H.	LERC/Maslowski, E. A.	45-Elec Engr

NAG 5-16 Massachusetts Institute of Technology 3073
Research on theories for microwave remote sensing flow

<i>Period</i>	<i>Obligations</i>	
03/01/80-02/28/81	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kong, J. A.	GSFC/Chang, A. T.	32-Geological Sci

NAG 3-280 Massachusetts Institute of Technology 3067
Thermomechanical low cycle fatigue research

<i>Period</i>	<i>Obligations</i>	
07/01/82-09/30/83	FY82: \$62,662	TOTAL: \$62,662
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pelloux, R. M.	LERC/Hirschberg, M. H.	47-Materials Engr
	LERC/Halford, G. R.	

NAG 5-19 Massachusetts Institute of Technology 3074
Seismicity and active tectonics of the Andes and the origin of the Altiplano

<i>Period</i>	<i>Obligations</i>	
03/01/80-09/30/82	FY82:	TOTAL: \$119,494
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Molnar, P.	GSFC/Kouns, C. W.	32-Geological Sci
Burchfield, B. C.		

NAG 3-283 Massachusetts Institute of Technology 3068
Electromagnetic accelerator technology

<i>Period</i>	<i>Obligations</i>	
05/15/82-05/14/83	FY82: \$40,489	TOTAL: \$40,489
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holm, H.	LERC/Terdan, F. F.	13-Physics
Graneau, P.		
Mongeau, P.		

NAG 5-41 Massachusetts Institute of Technology 3075
Geophysical study of the structures and processes of the continental convergence zones

<i>Period</i>	<i>Obligations</i>	
05/01/80-04/30/83	FY82: \$131,600	TOTAL: \$181,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Toksoz, M. N.	GSFC/Kouns, C. W.	32-Geological Sci
Molnar, P.	GSFC/Frey, H. V.	

NAG 3-312 Massachusetts Institute of Technology 3069
Processing of laser former si C powers

<i>Period</i>	<i>Obligations</i>	
07/30/82-07/29/83	FY82: \$45,273	TOTAL: \$45,273
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haggerty, J. S.	LERC/Dutta, S.	47-Materials Engr
Bowen, H. K.		

NAG 5-43 Massachusetts Institute of Technology 3076
Observations of the ultraviolet spectra of astronomical sources

<i>Period</i>	<i>Obligations</i>	
04/15/80-04/14/82	FY82:	TOTAL: \$7,705
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McClintock, J. E.	GSFC/Boggess, A.	11-Astronomy

NAG 3-334 Massachusetts Institute of Technology 3070
Coordination of the NASA HPF research

<i>Period</i>	<i>Obligations</i>	
09/15/82-12/15/82	FY82: \$5,095	TOTAL: \$5,095
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Epstein, A.	LERC/Rohde, J. E.	41-Aero Engr

NAG 5-44 Massachusetts Institute of Technology 3077
Application of laser ranging and very long baseline interferometer data to a study of plate tectonic driving forces

<i>Period</i>	<i>Obligations</i>	
05/01/80-06/30/83	FY82: \$50,000	TOTAL: \$183,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Solomon, S. C.	GSFC/Welker, J.	32-Geological Sci
Toksoz, M. N.		

NAG 3-335 Massachusetts Institute of Technology 3071
Impingement cooling of gas turbine blades in a rotating system

<i>Period</i>	<i>Obligations</i>	
09/20/82-09/19/83	FY82: \$75,028	TOTAL: \$75,028
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Epstein, A.	LERC/Rohde, J. E.	46-Mech Engr

NAG 5-89 Massachusetts Institute of Technology 3078
The role of vegetation in the water balance of a landsurface

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY82:	TOTAL: \$19,932
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eagleson, P. S.	GSFC/Halem, M.	32-Geological Sci

NAG 5-10 Massachusetts Institute of Technology 3072
Improved microwave retrieval techniques for atmospheric temperatures, winds and humidity

<i>Period</i>	<i>Obligations</i>	
02/01/80-04/30/83	FY82: \$95,000	TOTAL: \$264,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Susskind, J.	31-Atmos Sci
Rosenkranz, P. W.		

NAG 5-134 Massachusetts Institute of Technology 3079
Second-order Budyko-type parameterization of landsurface hydrology

<i>Period</i>	<i>Obligations</i>	
01/01/81-06/30/83	FY82: \$72,492	TOTAL: \$138,939
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eagleson, P. S.	GSFC/Shukla, J.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
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NAG 5-137 Massachusetts Institute of Technology 3080
Mechanisms of interannual ocean atmosphere interactions

<i>Period</i>	<i>Obligations</i>	
02/01/81-05/31/83	FY82: \$16,000	TOTAL: \$69,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, P. H.	GSFC/Shukla, J.	31-Atmos Sci
Frankignoul, C. F.		

NAG 5-270 Massachusetts Institute of Technology 3087
Remote sensing of Earth terrain

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$42,000	TOTAL: \$42,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kong, J. A.	GSFC/Chang, A.	55-Agriculture Sci

NAG 5-141 Massachusetts Institute of Technology 3081
Remote sensing of vegetation of soil moisture

<i>Period</i>	<i>Obligations</i>	
03/01/81-02/28/83	FY82: \$40,000	TOTAL: \$90,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kong, J. A.	GSFC/Wang, J. R.	39-Env Sci, NEC
GSFC/Schmugge, T.		

NAG 6-9 Massachusetts Institute of Technology 3088
Determination of general circulation of the ocean and marine geoid using satellite altimetry

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$5,000	TOTAL: \$5,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wunch, C.	GSFC/Leitao, C. D.	33-Oceanography
WFC/Huang, N. E.		

NAG 5-147 Massachusetts Institute of Technology 3082
Characterization of potential sources of magnetic anomalies

<i>Period</i>	<i>Obligations</i>	
04/01/81-06/30/82	FY82:	TOTAL: \$14,650
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spear, F. S.	GSFC/Kouns, C. W.	32-Geological Sci

NAG 9-12 Massachusetts Institute of Technology 3089
Thermal histories of lunar rocks

<i>Period</i>	<i>Obligations</i>	
02/01/81-06/01/83	FY82: \$50,000	TOTAL: \$108,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Uhlmann, D. R.	JSC/Dietrich, J. W.	73-History

NAG 5-149 Massachusetts Institute of Technology 3083
Study of seismic wave velocity structure in the downgoing slab

<i>Period</i>	<i>Obligations</i>	
04/15/81-04/14/83	FY82: \$70,877	TOTAL: \$115,877
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Molnar, P.	GSFC/Kouns, C. W.	11-Astronomy
GSFC/McAdoo, D.		

NAGW 14 Massachusetts Institute of Technology 3090
Feasibility and development study of a mercuric iodide solid state spectrometer for advanced X-ray astrophysics facility

<i>Period</i>	<i>Obligations</i>	
10/01/79-10/31/82	FY82: \$100,000	TOTAL: \$282,245
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ricker, G. R.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
HQ-EZ/Opp, A. G.		

NAG 5-170 Massachusetts Institute of Technology 3084
Observations of X-ray binaries

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/82	FY82:	TOTAL: \$4,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kallman, T. R.	GSFC/Bogges, A.	11-Astronomy
Hammerschlag, G.		
Vandenheuvel, E. P.		

NAGW 21 Massachusetts Institute of Technology 3091
Research program encompassed by space engineering

<i>Period</i>	<i>Obligations</i>	
11/01/79-09/30/82	FY82: \$399,238	TOTAL: \$995,991
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mar, J. W.	HQ-RT/Venneri, S. L.	42-Astro Engr
Miller, R. H.		

NAG 5-192 Massachusetts Institute of Technology 3085
Absorption line studies of giant shells in the galactic disk

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$5,500	TOTAL: \$11,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cowie, L. L.	GSFC/Kondo, Y.	11-Astronomy

NAGW 68 Massachusetts Institute of Technology 3092
Studies of planetary upper atmospheres through occultations

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/82	FY82:	TOTAL: \$89,960
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elliot, J. E.	HQ-EL/Murphy, R. E.	31-Atmos Sci
HQ-EL/Brunk, W. E.		

NAG 5-248 Massachusetts Institute of Technology 3086
Research of the extent of a gaseous halo

<i>Period</i>	<i>Obligations</i>	
08/01/82-04/30/83	FY82: \$5,000	TOTAL: \$5,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tremaine, S. D.	GSFC/Kondo, Y.	11-Astronomy
Songaila, A.		
York, D. G.		

NAGW 114 Massachusetts Institute of Technology 3093
Clays and the origin of life

<i>Period</i>	<i>Obligations</i>	
10/01/80-10/31/82	FY82: \$79,555	TOTAL: \$144,555
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewis, J. S.	HQ-EB/Devincenzi, D. L.	12-Chemistry
Hartman, H.		

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NAGW 165 Massachusetts Institute of Technology 3094
A program of extended analysis of Voyager plasma data with special emphasis on results obtained at Jupiter encounter

<i>Period</i>	<i>Obligations</i>	
03/15/81-03/14/83	FY82: \$100,000	TOTAL: \$175,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HQ-EE/Lynch, J. T.	13-Physics
	HQ-EE/Evans, N.	

NAGW 191 Massachusetts Institute of Technology 3095
Internal and surface evolution of the Galilean satellites

<i>Period</i>	<i>Obligations</i>	
04/01/81-05/31/83	FY82: \$54,000	TOTAL: \$93,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Solomon, S.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NAGW 208 Massachusetts Institute of Technology 3096
Theoretical astrophysical studies related to space astronomy astronomy

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$34,949	TOTAL: \$62,759
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cowie, L. L.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Bogges, N. W.	

NAGW 215 Massachusetts Institute of Technology 3097
Electromagnetic perturbations and scattering of Jupiter ring dust

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/82	FY82: \$24,900	TOTAL: \$24,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/French, B. M.	

NAGW 232 Massachusetts Institute of Technology 3098
A search for Earth-crossing asteroids

<i>Period</i>	<i>Obligations</i>	
09/01/81-12/31/82	FY82: \$55,000	TOTAL: \$55,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Taff, L. G.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Murphy, R. E.	

NAGW 332 Massachusetts Institute of Technology 3099
Geophysical interpretation of Venus gravity data

<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$45,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reasenberg, R. D.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAS 1-15154 Massachusetts Institute of Technology 3100
A study of noise and performance of propellers for light aircraft

<i>Period</i>	<i>Obligations</i>	
01/20/78-10/31/80	FY82: \$372,035	TOTAL: \$372,035
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingard, K. V.	LARC/Hubbard, H. H.	41-Aero Engr
	Kerrebrock, J. L.	

NAS 1-15268 Massachusetts Institute of Technology 3101
Air transportation research and analysis

<i>Period</i>	<i>Obligations</i>	
03/15/78-03/14/81	FY82: \$216,977	TOTAL: \$216,977
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Taneja, N. K.	LARC/Maddalon, D. V.	41-Aero Engr
	Ausrotas, R. A.	

NAS 2-9473 Massachusetts Institute of Technology 3102
Pioneer Venus data analysis of the radar altimeter experiment

<i>Period</i>	<i>Obligations</i>	
01/20/77-09/30/82	FY82: \$80,500	TOTAL: \$699,580
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pettingill, G. H.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J. W.	

NAS 2-9483 Massachusetts Institute of Technology 3103
Pioneer Venus data analysis of the orbiting celestial mechanics (OCM) experiment

<i>Period</i>	<i>Obligations</i>	
02/17/78-11/30/82	FY82: \$50,000	TOTAL: \$498,036
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	ARC/Fimmel, R. O.	11-Astronomy

NAS 2-10720 Massachusetts Institute of Technology 3104
Air traffic control simulation study

<i>Period</i>	<i>Obligations</i>	
05/01/80-12/31/81	FY82: \$70,779	TOTAL: \$70,779
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R. W.	ARC/Nagel, D. C.	41-Aero Engr
	Odoni, A. R.	

NAS 2-11232 Massachusetts Institute of Technology 3105
Develop software for air traffic control simulator

<i>Period</i>	<i>Obligations</i>	
04/22/82-04/30/83	FY82: \$143,823	TOTAL: \$143,823
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R.	ARC/Nagel, D. C.	29-Math/Computer, NEC
	Elias, A.	
	Pararas, E.	

NAS 5-22915 Massachusetts Institute of Technology 3106
Nimbus-G experiment team support for solar backscattered ultraviolet and total ozone mapping system

<i>Period</i>	<i>Obligations</i>	
01/28/76-03/27/81	FY82: \$138,540	TOTAL: \$138,540
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cunnold, D. M.	GSFC/Nelsen, E. D.	41-Aero Engr

NAS 5-22929 Massachusetts Institute of Technology 3107
Nimbus-G scanning multichannel microwave radiometer sensor

<i>Period</i>	<i>Obligations</i>	
01/28/76-04/30/83	FY82: \$20,000	TOTAL: \$232,843
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Staelin, D. H.	GSFC/Gloersen, P.	41-Aero Engr
	Rosenkrang, P. W.	GSFC/Holweck, E.

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NAS 5-24441 Massachusetts Institute of Technology 3108
Reduction and analysis of data from MIT X-ray observatory on-board SAS-3 spacecraft

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/83	FY82: \$351,654	TOTAL: \$3,651,604
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, G. W.	GSFC/Bullock, G.	11-Astronomy

NAS 5-27339 Massachusetts Institute of Technology 3115
The interpretation of crustal dynamics data in terms of plate motion and regional deformation near plate boundaries

<i>Period</i>	<i>Obligations</i>	
09/22/82-09/22/84	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Solomon, S. C.	GSFC/Mead, G. D.	32-Geological Sci
Toksoz, N.		

NAS 5-24493 Massachusetts Institute of Technology 3109
Design studies for far infrared absolute spectrophotometer for the Cosmic Background Explorer satellite

<i>Period</i>	<i>Obligations</i>	
03/01/78-03/31/83	FY82: \$71,036	TOTAL: \$423,621
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weiss, R. G.	GSFC/Mather, J. C.	11-Astronomy
	GSFC/Donohoe, M. J.	

NAS 8-27972 Massachusetts Institute of Technology 3116
Design, development, and operations of the AXR-2 integrated modulation collimator experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/23/72-09/30/82	FY82: \$94,999	TOTAL: \$2,219,477
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bradt, H. V.	MSFC/Stone, J. F.	11-Astronomy

NAS 5-25790 Massachusetts Institute of Technology 3110
Interplanetary monitoring platform-J/plasma experiment-data reduction and analysis

<i>Period</i>	<i>Obligations</i>	
11/01/79-12/15/82	FY82: \$60,000	TOTAL: \$240,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bridge, H. S.	GSFC/Wales, R. O.	11-Astronomy

NAS 8-27975 Massachusetts Institute of Technology 3117
Design and development of the AGR-5 high energy X-ray experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/23/72-09/30/82	FY82: \$133,999	TOTAL: \$3,394,624
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewin, W. H.	MSFC/Stone, J. F.	11-Astronomy

NAS 5-25833 Massachusetts Institute of Technology 3111
Validation intercompanion, and use of laser ranging and radio interferometric data for the determination of geophysical parameters

<i>Period</i>	<i>Obligations</i>	
01/15/80-04/14/83	FY82:	TOTAL: \$314,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	GSFC/Stephanides, C.	19-Phys Sci, NEC

NAS 8-30752 Massachusetts Institute of Technology 3118
Design, development and operations of the HEAO mission B telescope experiment

<i>Period</i>	<i>Obligations</i>	
06/01/74-09/30/82	FY82: \$178,000	TOTAL: \$3,893,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, G. W.	MSFC/Stone, J. F.	11-Astronomy

NAS 5-26861 Massachusetts Institute of Technology 3112
Passive microwave snowpack experiment

<i>Period</i>	<i>Obligations</i>	
01/18/82-01/18/84	FY82: \$23,000	TOTAL: \$23,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kong, J. A.	GSFC/Shiue, J. C.	32-Geological Sci

NAS 8-33137 Massachusetts Institute of Technology 3119
Apollo telescope mount guest investigator program for studying coronal sources of the intra stream structure of the solar wind

<i>Period</i>	<i>Obligations</i>	
10/30/78-03/01/82	FY82:	TOTAL: \$17,620
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sullivan, J. D.	MSFC/De Loach, A. C.	13-Physics
	MSFC/Snoddy, W. C.	

NAS 5-27230 Massachusetts Institute of Technology 3113
VLBI determination and interpretation of relative motions within a network of sites in North America and Europe

<i>Period</i>	<i>Obligations</i>	
07/01/82-07/01/84	FY82: \$150,000	TOTAL: \$150,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	GSFC/Mead, G. D.	32-Geological Sci
Counselman, C. C., III		

NAS 8-34381 Massachusetts Institute of Technology 3120
Space applications of automations, robotics and machine intelligence systems (ARAMIS)

<i>Period</i>	<i>Obligations</i>	
06/10/81-04/10/83	FY82: \$138,809	TOTAL: \$234,522
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Minsky, M. L.	MSFC/Vontiesenhausen, G. F.	46-Mech Engr
Miller, R. H.		

NAS 5-27261 Massachusetts Institute of Technology 3114
Conduct a design modification study of the plasma science experiment for adaptability IPL spacecraft

<i>Period</i>	<i>Obligations</i>	
06/01/82-12/31/82	FY82: \$28,152	TOTAL: \$28,152
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lazarus, A. J.	GSFC/Ogilvie, K. W.	13-Physics

NAS 8-34501 Massachusetts Institute of Technology 3121
Structural assembly demonstration experiment (SADE) scientific experiment

<i>Period</i>	<i>Obligations</i>	
06/23/81-04/23/82	FY82:	TOTAL: \$29,993
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, R. H.	MSFC/Stokes, J. W.	31-Atmos Sci
	MSFC/Elrod, S. E.	

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NAS 8-34545 Massachusetts Institute of Technology 3122
Study for the participation in the science and mission design of a large space deployable shuttle based antenna for space VLBI mission

<i>Period</i>	<i>Obligations</i>	
07/13/81-07/12/83	FY82: \$47,000	TOTAL: \$129,137
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burke, B. F.	MSFC/Morgan, S. H.	11-Astronomy

NAS 9-15343 Massachusetts Institute of Technology 3123
Definition of Spacelab I experiment on vestibular experiments

<i>Period</i>	<i>Obligations</i>	
04/04/77-12/01/83	FY82: \$251,289	TOTAL: \$1,308,840
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	JSC/Evans, J. S.	59-Life Sci, NEC

NAS 9-16008 Massachusetts Institute of Technology 3124
Evaluation of engineered foods for CELSS (closed ecological life support system)

<i>Period</i>	<i>Obligations</i>	
02/01/80-05/01/82	FY82: \$13,538	TOTAL: \$113,538
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karel, M.	JSC/Sauer, R. L.	59-Life Sci, NEC

NAS 9-16523 Massachusetts Institute of Technology 3125
Vestibular experiments in Spacelab

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$43,528	TOTAL: \$43,528
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	JSC/Evans, J. S.	59-Life Sci, NEC

NAS 9-16571 Massachusetts Institute of Technology 3126
Applied plasma physics study of plasma-gas interactions

<i>Period</i>	<i>Obligations</i>	
06/01/82-01/01/83	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Montgomery, D. B.	JSC/Chang, F.	13-Physics

NASW 3651 Massachusetts Institute of Technology 3127
Vestibular experiment on the German D-1 mission

<i>Period</i>	<i>Obligations</i>	
09/01/82-11/30/85	FY82: \$249,082	TOTAL: \$249,082
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	HQ-EB/Craemer, D. B.	56-Medical Sciences
	HQ-EB/Chambers, L. P.	

NCA 2-425101 Massachusetts Institute of Technology 3128
High speed data flow computer architecture for the solution of the Navier Stokes equation

<i>Period</i>	<i>Obligations</i>	
02/01/81-04/30/82	FY82:	TOTAL: \$24,641
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dennis, J. B.	ARC/Stevens, K. G.	22-Computer Science

NCA 2-425601 Massachusetts Institute of Technology 3129
Participation of transfer RNA in the origin of protein biosynthesis

<i>Period</i>	<i>Obligations</i>	
11/01/77-06/30/81	FY82:	TOTAL: \$27,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rich, A.	ARC/MacElroy, R. D.	51-Biological Sci

NCC 1-23 Massachusetts Institute of Technology 3130
Cockpit display of traffic information (CDTI) crew function assessment

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/82	FY82:	TOTAL: \$134,878
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hsieh, K. C.	LARC/Harris, R. L.	41-Aero Engr
Young, L. R.		

NCC 1-45 Massachusetts Institute of Technology 3131
Algorithms for computational fluid dynamics

<i>Period</i>	<i>Obligations</i>	
09/01/80-05/31/82	FY82: \$48,569	TOTAL: \$89,747
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Abarbanel, S. S.	LARC/Dwoyer, D. L.	41-Aero Engr
	LARC/Thames, F. C.	

NCC 3-1 Massachusetts Institute of Technology 3132
Molecular-orbital studies of metal-insulator interfaces

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/28/82	FY82:	TOTAL: \$107,275
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, K. H.	LERC/Pepper, S. V.	19-Phys Sci, NEC
Wallace, S.		

NCC 3-15 Massachusetts Institute of Technology 3133
Methanol as a fuel extender for stationary gas turbine combustors

<i>Period</i>	<i>Obligations</i>	
09/01/80-02/18/83	FY82: \$71,237	TOTAL: \$171,250
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hout, D. P.	LERC/Brabbs, T. A.	12-Chemistry

NCC 9-1 Massachusetts Institute of Technology 3134
Experiments on the etiology and time course of motion sickness

<i>Period</i>	<i>Obligations</i>	
10/01/81-12/31/82	FY82: \$122,908	TOTAL: \$122,908
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Oman, C. M.	JSC/Homick, J. L.	56-Medical Sciences

NGL 22-009-015 Massachusetts Institute of Technology 3135
Theoretical and experimental investigations of interplanetary medium and in gamma ray astronomy

<i>Period</i>	<i>Obligations</i>	
01/01/63-12/31/81	FY82: \$95,000	TOTAL: \$5,036,339
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HQ-EZ/Mayr, H. G.	13-Physics

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NGL 22-009-124 Massachusetts Institute of Technology 3136
Control optimization stabilization and computation of algorithms
for space applications

<i>Period</i>	<i>Obligations</i>	
03/30/66-12/31/83	FY82: \$150,000	TOTAL: \$1,222,289
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Holt, M.	ARC/Cicolani, L. S.	49-Engr, NEC
Willsky, A. S.	LARC/Elliott, J.	

NGR 22-009-526 Massachusetts Institute of Technology 3143
Astronomy in the region between 1 mm to 0.1 mm wavelengths

<i>Period</i>	<i>Obligations</i>	
09/22/70-11/30/82	FY82: \$94,752	TOTAL: \$692,627
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weiss, R.	HQ-EZ/Bogges, N. W.	11-Astronomy
	HQ-EZ/Weiler, E. J.	

NGL 22-009-383 Massachusetts Institute of Technology 3137
Research in propulsion and power generation

<i>Period</i>	<i>Obligations</i>	
01/16/69-08/31/84	FY82: \$99,120	TOTAL: \$1,277,287
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Covert, E. E.	LERC/Gorrell, W. T.	41-Aero Engr
Thompkins, W. T.		
Epstein, A. H.		

NGR 22-009-627 Massachusetts Institute of Technology 3144
Control of serotonin-containing neurons in the brain, by plasma
tryptophan

<i>Period</i>	<i>Obligations</i>	
11/01/71-12/31/82	FY82: \$86,000	TOTAL: \$726,184
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deloatch, E. M.	ARC/Winget, C. M.	56-Medical Sciences
Bradley, T.		
Neal, W.		

NGL 22-009-521 Massachusetts Institute of Technology 3138
Composition and structure of planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
08/10/70-07/30/83	FY82: \$59,877	TOTAL: \$977,519
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewis, J. S.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NGR 22-009-672 Massachusetts Institute of Technology 3145
Ground-based radar study of the Moon and planets

<i>Period</i>	<i>Obligations</i>	
03/06/72-10/31/83	FY82: \$75,550	TOTAL: \$541,570
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pettengill, G. H.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Britton, H. C.	

NGL 22-009-638 Massachusetts Institute of Technology 3139
Research in space science

<i>Period</i>	<i>Obligations</i>	
03/03/72-03/31/83	FY82: \$100,000	TOTAL: \$2,320,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bridge, H. S.	HQ-E/Gaskins, M. A.	99-Multi-Discip
	HQ-EP/Devlin, J. F.	

NGR 22-009-727 Massachusetts Institute of Technology 3146
Study in numerical modeling of atmospheric phenomena

<i>Period</i>	<i>Obligations</i>	
02/01/73-12/15/82	FY82: \$192,100	TOTAL: \$1,288,663
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stone, P. H.	GSFC/Halem, M.	31-Atmos Sci

NGL 22-009-640 Massachusetts Institute of Technology 3140
Joint university research program future air transportation
technological needs

<i>Period</i>	<i>Obligations</i>	
11/16/71-01/31/84	FY82: \$50,012	TOTAL: \$768,345
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simpson, R. W.	LARC/Howell, W. E.	41-Aero Engr

NGR 22-009-730 Massachusetts Institute of Technology 3147
X-ray astronomy experiments from sounding rockets

<i>Period</i>	<i>Obligations</i>	
03/22/72-08/31/83	FY82:	TOTAL: \$1,640,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rappaport, S. A.	GSFC/Early, L. J.	11-Astronomy
Boughan, E.	GSFC/Pless, R. H.	
Levine, A.		

NGR 22-009-005 Massachusetts Institute of Technology 3141
Detection and identification of organic matter by mass spectrom-
etry

<i>Period</i>	<i>Obligations</i>	
12/01/61-11/30/82	FY82: \$88,695	TOTAL: \$1,368,357
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Biemann, K.	HQ-EB/Devincenzi, D. L.	51-Biological Sci

NGR 22-009-839 Massachusetts Institute of Technology 3148
Wideband recording system for very long baseline in-
terferometry

<i>Period</i>	<i>Obligations</i>	
04/01/74-03/15/82	FY82: \$1,310	TOTAL: \$715,450
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	GSFC/Clark, T. A.	32-Geological Sci
Counselman, C. C.	GSFC/Ryan, J. W.	

NGR 22-009-277 Massachusetts Institute of Technology 3142
The prebiotic synthesis of polynucleotides and polynucleotide-
directed polypeptides

<i>Period</i>	<i>Obligations</i>	
12/01/67-11/30/82	FY82: \$60,000	TOTAL: \$737,370
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rich, A.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NGT 22-009-900 Massachusetts Institute of Technology 3149
Visiting assistant professor program

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/83	FY82: \$19,197	TOTAL: \$190,197
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harrison, D. E.	HQ-EB/McGoldrick, L. F.	
Loreng, E. N.	HQ-EB/Wilson, W. S.	33-Oceanography

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NGT 22-009-901 Massachusetts Institute of Technology 3150
Training program in computational fluid dynamics

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$100,000	TOTAL: \$175,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Murman, E. M.	HQ-RT/Graves, R. A.	41-Aero Engr

NGT 22-009-902 Massachusetts Institute of Technology 3151
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$5,521	TOTAL: \$17,121
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewin, W.	HQ-LB/Carter, C. H.	13-Physics

NSG 1323 Massachusetts Institute of Technology 3152
Research in algebraic manipulation

<i>Period</i>	<i>Obligations</i>	
07/01/76-06/30/83	FY82: \$25,000	TOTAL: \$228,984
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moses, J.	LARC/Shoosmith, J. N.	22-Computer Science

NSG 1358 Massachusetts Institute of Technology 3153
Study of feasibility of applying superconducting coil technology to general purpose magnetic balance and suspension system

<i>Period</i>	<i>Obligations</i>	
01/01/77-08/31/80	FY82:	TOTAL: \$269,610
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haldeman, C. W.	LARC/Boyden, R. P.	41-Aero Engr
	LARC/Kilgore, R. A.	

NSG 1502 Massachusetts Institute of Technology 3154
Closed-loop roll control for magnetic balance systems

<i>Period</i>	<i>Obligations</i>	
02/01/78-01/31/82	FY82:	TOTAL: \$358,841
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Covert, E. E.	LARC/Boyden, R. P.	41-Aero Engr
Haldeman, C. W.	LARC/Kilgore, R. A.	

NSG 1504 Massachusetts Institute of Technology 3155
Teflon fibril toughening of glassy polymers

<i>Period</i>	<i>Obligations</i>	
02/01/78-06/30/81	FY82:	TOTAL: \$84,206
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGarry, F. J.	LARC/Johnston, N. J.	47-Materials Engr
Mandel, J. F.	LARC/Sykes, G. F.	

NSG 1583 Massachusetts Institute of Technology 3156
Research on helicopter rotor harmonic noise and broadband noise

<i>Period</i>	<i>Obligations</i>	
12/01/78-11/30/82	FY82: \$61,112	TOTAL: \$246,014
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harris, W. L.	LARC/Brooks, T. F.	13-Physics
	LARC/Farassat, F.	

NSG 2010 Massachusetts Institute of Technology 3157
Study of impact on Space Shuttle on stratospheric ozone

<i>Period</i>	<i>Obligations</i>	
03/01/74-01/31/83	FY82: \$207,000	TOTAL: \$1,838,260
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Prinn, R. G.	ARC/Whitten, R. C.	31-Atmos Sci

NSG 2032 Massachusetts Institute of Technology 3158
Research on habituation to novel visual-vestibular environments with particular reference to space flight

<i>Period</i>	<i>Obligations</i>	
07/01/74-02/15/81	FY82: \$39	TOTAL: \$519,803
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, L. R.	ARC/Daunton, N. G.	59-Life Sci, NEC

NSG 2142 Massachusetts Institute of Technology 3159
Helicopter rotor noise

<i>Period</i>	<i>Obligations</i>	
07/01/76-05/31/83	FY82: \$69,784	TOTAL: \$321,496
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Widnall, S. E.	ARC/Johnson, W. R.	41-Aero Engr

NSG 2266 Massachusetts Institute of Technology 3160
An investigation of advanced helicopter rotors having individual-blade-control

<i>Period</i>	<i>Obligations</i>	
11/01/77-10/31/82	FY82: \$129,925	TOTAL: \$529,746
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ham, N. D.	ARC/Johnson, W. R.	41-Aero Engr

NSG 2342 Massachusetts Institute of Technology 3161
Opportunity observations of occultations and eclipses

<i>Period</i>	<i>Obligations</i>	
11/01/78-10/31/82	FY82: \$58,192	TOTAL: \$184,102
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elliot, J. L.	ARC/Haughney, L. C.	11-Astronomy

NSG 2403 Massachusetts Institute of Technology 3162
Development of a prototype experiment for treating wastes to nutrients for plant growth

<i>Period</i>	<i>Obligations</i>	
09/01/79-09/30/82	FY82:	TOTAL: \$475,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Modell, M.	ARC/Wydeven, T.	59-Life Sci, NEC
	ARC/Quatrone, P. D.	

NSG 3017 Massachusetts Institute of Technology 3163
Silicon surface phenomena related to energy conversion

<i>Period</i>	<i>Obligations</i>	
05/01/74-02/19/83	FY82: \$75,000	TOTAL: \$395,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gatos, H. C.	LERC/Weinberg, I.	47-Materials Engr
	LERC/Swartz, C. K.	

NSG 3044 Massachusetts Institute of Technology 3164
Special finite elements for the analysis of flaw growth and fracture in fiber composites

<i>Period</i>	<i>Obligations</i>	
02/01/75-09/30/81	FY82:	TOTAL: \$249,195
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGarry, F. J.	LERC/Chamis, C. C.	49-Engr, NEC

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NSG 3079 Massachusetts Institute of Technology 3165
Development of techniques for turbomachinery flutter clearance
Period *Obligations*
07/15/75-08/29/83 FY82: \$61,894 TOTAL: \$378,439
Prin. Invest. *NASA Tech. Officer* *CASE Category*
-Crawley, E. F. LERC/Adamczyk, J. J. 41-Aero Engr

NSG 3175 Massachusetts Institute of Technology 3166
Development of electromagnetic mass drivers
Period *Obligations*
12/01/77-12/31/81 FY82: TOTAL: \$156,510
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kolm, H. H. LERC/Kerslake, W. R. 42-Astro Engr

NSG 3208 Massachusetts Institute of Technology 3167
Strut induced aerodynamic forging functions
Period *Obligations*
07/05/78-09/28/83 FY82: \$55,266 TOTAL: \$219,903
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greitzer, E. M. LERC/Adamczyk, J. J. 41-Aero Engr

NSG 3210 Massachusetts Institute of Technology 3168
Wave propagation in fiber composites relating to acoustic-ultrasonic NDE techniques
Period *Obligations*
08/01/78-12/29/82 FY82: \$50,000 TOTAL: \$139,905
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, J. H., Jr. LERC/Vary, A. 47-Materials Engr

NSG 3286 Massachusetts Institute of Technology 3169
Viscous flow and crystallization behavior of hydrocarbon mixtures
Period *Obligations*
08/02/79-08/28/83 FY82: \$58,990 TOTAL: \$216,693
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Uhlmann, D. R. LERC/Antoine, A. C. 12-Chemistry

NSG 3303 Massachusetts Institute of Technology 3170
Development of a methodology for horizontal axis wind turbine dynamic analysis
Period *Obligations*
08/15/79-08/12/82 FY82: TOTAL: \$205,858
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dugundji, J. LERC/Janetzke, D. C. 41-Aero Engr
LERC/Spera, D. A.

NSG 5113 Massachusetts Institute of Technology 3171
Research in stratospheric dynamics
Period *Obligations*
07/01/76-06/30/83 FY82: \$78,300 TOTAL: \$427,703
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, P. H. GSFC/Rind, D. 31-Atmos Sci

NSG 5186 Massachusetts Institute of Technology 3172
Theoretical and numerical study of climate and climate change
Period *Obligations*
03/21/77-12/20/82 FY82: TOTAL: \$243,986
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Charnay, J. G. GSFC/Halem, M. 31-Atmos Sci
Stone, P. H.

NSG 7081 Massachusetts Institute of Technology 3173
Models of the composition, structure and evolution of the lunar interior
Period *Obligations*
06/01/74-02/28/83 FY82: \$140,000 TOTAL: \$1,314,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Toksoz, M. N. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NSG 7186 Massachusetts Institute of Technology 3174
An observatory search for and study of new IR sources reported in the AFCRL catalogue
Period *Obligations*
12/01/75-01/31/83 FY82: TOTAL: \$154,414
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kleinmann, S. HQ-EZ/Boggess, N. W. 11-Astronomy

NSG 7297 Massachusetts Institute of Technology 3175
Studies of stress history of terrestrial lithospheres
Period *Obligations*
01/01/77-01/31/83 FY82: \$42,085 TOTAL: \$211,585
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Solomon, S. C. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NSG 7331 Massachusetts Institute of Technology 3176
Crystal growth of device quality gallium arsenite in space
Period *Obligations*
04/01/79-03/31/84 FY82: \$350,000 TOTAL: \$2,320,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gatos, H. C. HQ-EL/Tuyahov, A. J. 47-Materials Engr

NSG 7339 Massachusetts Institute of Technology 3177
X-ray balloon observations from the Northern and Southern Hemispheres
Period *Obligations*
04/01/77-11/30/82 FY82: \$105,000 TOTAL: \$645,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ricker, G. R. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
HQ-EZ/Opp, A. G.

NSG 7526 Massachusetts Institute of Technology 3178
Portable high-speed photometry systems for observing occultations
Period *Obligations*
01/01/79-12/31/81 FY82: \$52,000 TOTAL: \$205,118
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Elliot, J. L. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Murphy, R. E.

NSG 7556 Massachusetts Institute of Technology 3179
Viking radio science data analysis and synthesis
Period *Obligations*
03/01/79-10/31/82 FY82: \$100,000 TOTAL: \$482,450
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shapiro, I. I. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Brinton, H. C.

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NSG 7604	Massachusetts Institute of Technology	3180
Electronic spectra of heated lunar materials: Quantifying remote sensed spectra of hot planetary surfaces		
<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/83	FY82: \$89,990 TOTAL: \$327,467	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burns, R. G.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	
NSG 7638	Massachusetts Institute of Technology	3181
Mars orbiter and comet mission		
<i>Period</i>	<i>Obligations</i>	
04/15/79-01/31/83	FY82: \$135,000 TOTAL: \$530,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Binsack, J. H.	HQ-EL/Ando, K.	31-Atmos Sci
McCord, T. B.		
NSG 7643	Massachusetts Institute of Technology	3182
Experimental and theoretical investigations in high energy astrophysics		
<i>Period</i>	<i>Obligations</i>	
01/01/79-01/31/83	FY82: \$155,000 TOTAL: \$449,666	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, G.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	
NSG 7645	Massachusetts Institute of Technology	3183
Materials processing research base		
<i>Period</i>	<i>Obligations</i>	
10/01/79-09/30/84	FY82: \$807,000 TOTAL: \$2,276,378	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Flemings, M. C.	HQ-EM/Testardi, L. R.	47-Materials Engr
NAG 3-296	Southeastern Massachusetts University	3184
Mixing in turbulent transient jet flow		
<i>Period</i>	<i>Obligations</i>	
06/30/82-02/28/83	FY82: \$15,748 TOTAL: \$15,748	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shen, T.	LERC/Marek, C. J.	46-Mech Engr
NAG 2-51	Tufts University	3185
The human factors of avionic computers		
<i>Period</i>	<i>Obligations</i>	
09/01/80-11/30/82	FY82: \$29,423 TOTAL: \$73,367	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chechile, R. A.	ARC/Palmer, E. A.	69-Psych, NEC
NAG 9-25	Tufts University	3186
Control of bone remodeling by applied dynamic loads		
<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$94,650 TOTAL: \$94,650	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lanyon, L.	JSC/Trevino, N. C.	56-Medical Sciences
NCA 2-785201	Tufts University	3187
Models of protein dynamics		
<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/84	FY82: \$12,505 TOTAL: \$12,505	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weaver, D.	ARC/MacElroy, R. D.	51-Biological Sci
NCC 2-93	Tufts University	3188
Simulator fidelity and numerosity effects in CDTI experimentation		
<i>Period</i>	<i>Obligations</i>	
09/01/80-10/31/82	FY82: \$34,787 TOTAL: \$191,135	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kreifeldt, J. G.	ARC/Hart, S. G.	99-Multi-Discip
NSG 2156	Tufts University	3189
Study of pilot controller interaction under various simulated advanced ATC and navigation concepts		
<i>Period</i>	<i>Obligations</i>	
06/01/76-08/31/80	FY82: TOTAL: \$386,827	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kreifeldt, J. G.	ARC/Wempe, T. E.	99-Multi-Discip
NAG 1-54	University of Massachusetts - Amherst	3190
Remote sensing of ocean surface and ice conditions using microwaves		
<i>Period</i>	<i>Obligations</i>	
09/01/80-02/28/83	FY82: TOTAL: \$117,950	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McIntosh, R. E.	LARC/Johnson, J. M.	45-Elec Engr
NAG 1-115	University of Massachusetts - Amherst	3191
Tools supporting pre-implementation development of flight control software		
<i>Period</i>	<i>Obligations</i>	
01/01/81-02/28/83	FY82: \$63,863 TOTAL: \$134,721	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wileden, J. C.	LARC/Senn, E. H.	22-Computer Science
Clarke, L. A.	LARC/Voigt, S. J.	
NAG 1-163	University of Massachusetts - Amherst	3192
Analysis of microstrip antennas		
<i>Period</i>	<i>Obligations</i>	
06/01/81-06/30/83	FY82: \$10,461 TOTAL: \$21,462	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pozar, D. M.	LARC/Bailey, M. C.	45-Elec Engr
NAG 1-279	University of Massachusetts - Amherst	3193
Near millimeter wave imaging antennas and integrated receivers		
<i>Period</i>	<i>Obligations</i>	
06/01/82-03/31/83	FY82: \$49,890 TOTAL: \$49,890	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yngvesson, K. S.	LARC/Johnson, J. W.	45-Elec Engr
Parrish, P. T.	LARC/Kendall, B. M.	
NAG 2-138	University of Massachusetts - Amherst	3194
Pioneer Venus program extended mission		
<i>Period</i>	<i>Obligations</i>	
10/01/81-09/30/83	FY82: \$24,000 TOTAL: \$24,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGill, G. E.	ARC/Fimmel, R. O.	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAGW 40 University of Massachusetts - Amherst 3195
Mars: Mineralogy of the surface materials

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/82	FY82: \$43,862	TOTAL: \$168,862
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huguenin, R. L.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NSG 7397 University of Massachusetts - Amherst 3202
Surface chemistry and the search for life on Mars

<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/82	FY82: \$49,000	TOTAL: \$202,993
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huguenin, R. L.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NAGW 276 University of Massachusetts - Amherst 3196
The mapping of ocean surface currents using dual-frequency microwave radars

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$74,324	TOTAL: \$74,324
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McIntosh, R. E.	HQ-EB/McGoldrick, L. F.	
	HQ-EB/Wilson, W. S.	33-Oceanography

NSG 7405 University of Massachusetts - Amherst 3203
Mineralogy and weathering processes on Mars

<i>Period</i>	<i>Obligations</i>	
10/01/77-12/31/82	FY82: \$35,817	TOTAL: \$175,685
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huguenin, R. L.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAGW 287 University of Massachusetts - Amherst 3197
Microwave remote sensing measurements

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$133,626	TOTAL: \$133,626
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swift, C. T.	HQ-EB/McGoldrick, L. F.	
	HQ-EB/Wilson, W. S.	33-Oceanography

NSG 7549 University of Massachusetts - Amherst 3204
The opaque mineral chemistry of allende, basaltic achondrites, and the Antarctic meteorite suite

<i>Period</i>	<i>Obligations</i>	
05/01/79-01/31/82	FY82:	TOTAL: \$139,682
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haggerty, S. E.	HQ-EL/French, B. M.	32-Geological Sci
	HQ-EL/Quaide, W. L.	

NAS 2-9129 University of Massachusetts - Amherst 3198
Interdisciplinary scientist and radar team member

<i>Period</i>	<i>Obligations</i>	
01/22/76-09/30/81	FY82:	TOTAL: \$92,231
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGill, G. E.	ARC/Fimmel, R. O.	11-Astronomy
	ARC/Dyer, J. W.	

NSG 9069 University of Massachusetts - Amherst 3205
Comparative geochemical and petrological study of lunar and terrestrial basaltic volcanism

<i>Period</i>	<i>Obligations</i>	
05/15/78-01/31/83	FY82: \$10,000	TOTAL: \$119,791
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rhodes, J. M.	JSC/Dietrich, J. W.	32-Geological Sci

NAS 5-26414 University of Massachusetts - Amherst 3199
Scientific investigation of the mineralogy of magnetic anomalies

<i>Period</i>	<i>Obligations</i>	
12/24/80-04/23/83	FY82:	TOTAL: \$39,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haggerty, S. E.	GSFC/Oserhoff, H.	32-Geological Sci

NSG 5376 Wheaton College 3206
Ultraviolet spectrophotometry of planetary nebulae

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/82	FY82:	TOTAL: \$11,216
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Barker, T.	GSFC/Kondo, Y.	11-Astronomy

NGL 22-010-023 University of Massachusetts - Amherst 3200
Theoretical studies of diffuse reflection and transmission of radiation in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
05/24/67-09/30/83	FY82: \$97,858	TOTAL: \$694,615
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Irvine, W. M.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NAG 1-91 Woods Hole Oceanographic Institution 3207
Acoustic profiling of ocean currents

<i>Period</i>	<i>Obligations</i>	
07/15/80-05/14/82	FY82:	TOTAL: \$310,798
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Joyce, T. M.	LARC/Allario, F.	33-Oceanography

NAG 2-91 Woods Hole Oceanographic Institution 3208
Gravity, topography and crustal evolution of Venus

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/81	FY82:	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bowlin, C. O.	ARC/Fimmel, R. O.	32-Geological Sci

NGR 22-010-076 University of Massachusetts - Amherst 3201
Reconnaissance study of large geologic ring structures on Mars

<i>Period</i>	<i>Obligations</i>	
05/19/70-01/31/83	FY82: \$38,406	TOTAL: \$387,181
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGill, G. E.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAG 5-8 Woods Hole Oceanographic Institution 3209
Oceanic eddy heat and momentum fluxes at the continental margin

<i>Period</i>	<i>Obligations</i>	
02/01/80-07/31/81	FY82:	TOTAL: \$8,513
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haidvogel, D. B.	GSFC/Halem, M.	33-Oceanography

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAG 5-18 Woods Hole Oceanographic Institution 3210
Upper mantle heterogeneity: Comparison of region south of Australia with the Philippine Basin

<i>Period</i>	<i>Obligations</i>	
03/01/80-08/31/81	FY82: \$30,000	TOTAL: \$71,090
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brown, C.	GSFC/Smith, D. E.	32-Geological Sci

NAG 5-185 Woods Hole Oceanographic Institution 3211
Warm water mass formation

<i>Period</i>	<i>Obligations</i>	
05/15/81-11/14/82	FY82:	TOTAL: \$88,165
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gaddy, G. T.	GSFC/Rao, D. B.	32-Geological Sci

NAGW 241 Woods Hole Oceanographic Institution 3212
Support for the development and coordination of remote sensing activities

<i>Period</i>	<i>Obligations</i>	
08/01/81-01/31/83	FY82:	TOTAL: \$115,630
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spencer, D. W.	HQ-EB/McGoldrick, L. F. HQ-EB/Wilson, W. S.	39-Env Sci, NEC

NAGW 265 Woods Hole Oceanographic Institution 3213
System and engineering design of the relays

<i>Period</i>	<i>Obligations</i>	
10/01/81-03/31/83	FY82: \$187,441	TOTAL: \$187,441
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chase, R. R. Walden, R. G. Webb, D. C.	HQ-EB/McGoldrick, L. F. HQ-EB/Wilson, W. S.	33-Oceanography

NAGW 272 Woods Hole Oceanographic Institution 3214
Research on acoustic profiling of upper ocean currents

<i>Period</i>	<i>Obligations</i>	
10/15/81-10/14/82	FY82: \$288,982	TOTAL: \$288,982
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Joyce, T. M.	HQ-EB/McGoldrick, L. F. HQ-EB/Wilson, W. S.	33-Oceanography

NAS 1-16606 Woods Hole Oceanographic Institution 3215
Study of dynamics of phytoplankton patches on Nantucket shoals

<i>Period</i>	<i>Obligations</i>	
04/02/81-03/31/83	FY82:	TOTAL: \$25,180
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beardsley, R. C. Limeburner, R.	LARC/Saias, W. E. LARC/Hypes, W. D.	33-Oceanography

NAS 6-3160 Woods Hole Oceanographic Institution 3216
Development of laser-operated phytoplankton profiling system

<i>Period</i>	<i>Obligations</i>	
03/02/81-03/01/82	FY82:	TOTAL: \$12,533
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Evans, G.	GSFC/Hoge, F. E. WFC/McGoogan, J. T.	19-Phys Sci, NEC

NAS 6-3166 Woods Hole Oceanographic Institution 3217
Initial investigation of seawater fluorescence absorption properties and their relevance to oceanic lidar data interpretation

<i>Period</i>	<i>Obligations</i>	
02/01/81-12/31/81	FY82:	TOTAL: \$8,494
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zafiriou, O. C.	GSFC/Hoge, F. E. WFC/McGoogan, J. T.	33-Oceanography

NGT 22-014-800 Woods Hole Oceanographic Institution 3218
Graduate student training program in oceanographic remote sensing

<i>Period</i>	<i>Obligations</i>	
06/01/81-09/30/82	FY82:	TOTAL: \$70,917
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hollister, C. D.	HQ-EB/McGoldrick, L. F. HQ-EB/Wilson, W. S.	33-Oceanography

NAGW 325 Worcester Polytechnic Institute 3219
Chemistry of mass as revealed by the Viking labeled release experiments

<i>Period</i>	<i>Obligations</i>	
04/15/82-04/14/83	FY82: \$2,000	TOTAL: \$2,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Plumb, R. C.	HQ-EL/Quaide, W. L. HQ-EL/Boyce, J. M.	32-Geological Sci

NCC 1-56 Worcester Polytechnic Institute 3220
Visual scanning and aircraft pilot behavior

<i>Period</i>	<i>Obligations</i>	
11/09/81-11/08/82	FY82: \$76,457	TOTAL: \$76,457
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tole, J. R.	LARC/Harris, R. L., Sr.	99-Multi-Discip

NSG 7392 Worcester Polytechnic Institute 3221
Martian chemistry relevant to biological activity and the Viking labeled release experiments

<i>Period</i>	<i>Obligations</i>	
12/15/77-07/31/82	FY82:	TOTAL: \$160,840
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Plumb, R. C.	HQ-EB/Devincenzi, D. L.	12-Chemistry

MICHIGAN

NAG 1-221 Michigan State University 3222
Effects of large eddy breakup (LEBU) devices on turbulent boundary layer drag

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$20,755	TOTAL: \$20,755
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Falco, R. E.	LARC/Hefner, J. N. LARC/Bushnell, D. M.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAG 1-287 Michigan State University 3223
Vorticity measurements in the intermittent region of a free shear layer and transfer of programs to Langley

<i>Period</i>	<i>Obligations</i>	
06/15/82-12/31/82	FY82: \$13,667	TOTAL: \$13,667
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Foss, J. F.	LARC/Yu, J. C.	41-Aero Engr

NAGW 97 Michigan State University 3230
An attempt to localize and identify the gravity sensing mechanism of plants

<i>Period</i>	<i>Obligations</i>	
08/01/80-11/30/83	FY82: \$80,000	TOTAL: \$208,178
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bandurski, R. S.	HQ-EB/Halstead, T. W.	51-Biological Sci

NAG 2-86 Michigan State University 3224
Vorticity measurements in a forced plane shear layer

<i>Period</i>	<i>Obligations</i>	
10/01/80-12/31/82	FY82: \$51,518	TOTAL: \$101,597
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Foss, J. F.	ARC/Rubesin, M. W.	41-Aero Engr

NAS 5-26445 Michigan State University 3231
High data rate (multigigabit) satellite communication system study

<i>Period</i>	<i>Obligations</i>	
01/30/81-06/30/82	FY82:	TOTAL: \$39,418
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Siegel, M.	GSFC/Shu, P. K.	45-Elec Engr

NAG 3-51 Michigan State University 3225
Experimental evaluation criteria for constitutive models of time-dependents cyclic plasticity

<i>Period</i>	<i>Obligations</i>	
06/02/80-05/29/83	FY82: \$49,987	TOTAL: \$141,919
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martin, J. F.	LERC/Mogaw, M. A.	47-Materials Engr

NGL 23-004-083 Michigan State University 3232
Use of remote sensing for land use policy formulation

<i>Period</i>	<i>Obligations</i>	
06/08/72-05/31/85	FY82: \$150,000	TOTAL: \$1,360,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boylan, M. G.	HQ-EL/Tuyahoy, J.	39-Env Sci, NEC
Bartholic, J.		

NAG 3-93 Michigan State University 3226
A miniature nanosecond spark detector for liquid chromatographic analysis of crude oils and fuels

<i>Period</i>	<i>Obligations</i>	
09/15/80-09/12/83	FY82: \$34,517	TOTAL: \$102,479
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Crouch, S. R.	LERC/Seng, G. T.	12-Chemistry

NSG 3299 Michigan State University 3233
Generation of free radicals and ions for spacecraft propulsion

<i>Period</i>	<i>Obligations</i>	
08/15/79-11/11/83	FY82: \$180,969	TOTAL: \$477,198
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Asmussen, J.	LERC/Nakanishi, S.	19-Phys Sci, NEC
Hawley, M. C.		
Kerber, R. L.		

NAG 3-107 Michigan State University 3227
Development and application of triple quadrupole mass spectrometry for jet fuel characterization

<i>Period</i>	<i>Obligations</i>	
10/13/80-10/11/83	FY82:	TOTAL: \$168,681
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Enke, C. G.	LERC/Seng, G. T.	12-Chemistry

NSG 7293 Michigan State University 3234
Radiative fluid dynamic studies of the Sun and compact H II regions

<i>Period</i>	<i>Obligations</i>	
10/01/76-11/30/82	FY82: \$20,000	TOTAL: \$97,492
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stein, R. F.	HQ-EZ/Chipman, E.	13-Physics

NAG 3-245 Michigan State University 3228
Free stream turbulence and density ratio effects on the interaction region of a jet in a cross flow

<i>Period</i>	<i>Obligations</i>	
12/28/81-12/27/82	FY82: \$35,385	TOTAL: \$35,385
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Foss, J. F.	LERC/Holdeman, J. D.	46-Mech Engr

NAG 2-140 Michigan Technological University 3235
Conference on differential geometric control theory

<i>Period</i>	<i>Obligations</i>	
05/01/82-08/31/82	FY82: \$19,937	TOTAL: \$19,937
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Millman, R. S.	ARC/Meyer, G.	49-Engr, NEC
	ARC/Doolin, B. F.	

NAG 3-305 Michigan State University 3229
Energy conversion and transfer mechanisms in low molecular weight gases

<i>Period</i>	<i>Obligations</i>	
11/16/82-11/15/83	FY82: \$80,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Asmussen, J.	LERC/Nakanishi, S.	19-Phys Sci, NEC
Hawley, M. C.		
Kerber, R. L.		

NAG 3-216 Michigan Technological University 3236
Structure property effects of tantalum additions to nickel-base super alloys

<i>Period</i>	<i>Obligations</i>	
10/20/81-10/19/83	FY82:	TOTAL: \$197,037
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heckel, R. W.	LERC/Dreshfield, R. L.	12-Chemistry
Pletka, B. J.	LERC/Scheuermann, C. M.	
Koss, D. A.		

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAG 3-244 Michigan Technological University 3237
Combined effects of surface oxidation and coating/substrate interdiffusion of coating performance

<i>Period</i>	<i>Obligations</i>	
12/20/81-12/19/82	FY82: \$38,200	TOTAL: \$38,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heckel, R. W.	LERC/Gedwill, M. A.	47-Materials Engr

NAG 3-326 Michigan Technological University 3238
A dynamic analysis of rotary combustion engine seals

<i>Period</i>	<i>Obligations</i>	
09/20/82-09/19/83	FY82: \$24,990	TOTAL: \$24,990
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vilman, C.	LERC/Schock, H. J.	46-Mech Engr

NAG 3-344 Michigan Technological University 3239
Investigation of effect of speed of movement of dynamic loads on deflection of spur gear teeth

<i>Period</i>	<i>Obligations</i>	
01/01/83-12/31/83	FY82: \$46,149	TOTAL: \$46,149
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Passerello, C. E.	LERC/Coy, J. J.	46-Mech Engr

NAS 8-33727 Michigan Technological University 3240
Materials processing in space experiment. The influence of gravity on the solidification of monotectic alloys

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$44,523	TOTAL: \$126,523
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hellawell, A.	MSFC/Reeves, F. A.	19-Phys Sci, NEC
	MSFC/Williams, J. R.	

NSG 3215 Michigan Technological University 3241
Diffusion modeling of cyclic oxidation transport processes in Ni-base alloys

<i>Period</i>	<i>Obligations</i>	
08/01/78-07/30/81	FY82:	TOTAL: \$91,381
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heckel, R. W.	LERC/Barrett, C. A.	47-Materials Engr
	LERC/Lowell, C. E.	

NAG 3-148 Spring Arbor College 3242
Chemical and electrochemical aspects of the chromic/chromous electrode reaction in the NASA-redox energy storage system

<i>Period</i>	<i>Obligations</i>	
01/10/81-05/30/83	FY82: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, D. A.	LERC/Charleson, J. A.	12-Chemistry

NAG 1-86 University of Michigan - Ann Arbor 3243
Effectiveness of nonaerodynamics controls during entry of a single-state-to-orbit vehicle

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/81	FY82:	TOTAL: \$32,339
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vinh, N. X.	LARC/Powell, R. W.	41-Aero Engr
	LARC/Shoosmith, J. N.	

NAG 1-93 University of Michigan - Ann Arbor 3244
Halogen occultation experiment

<i>Period</i>	<i>Obligations</i>	
07/17/80-12/31/82	FY82: \$23,934	TOTAL: \$74,014
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drayson, S. R.	LARC/Sullivan, E. M.	31-Atmos Sci

NAG 1-296 University of Michigan - Ann Arbor 3245
The performance and evaluation of real-time multicomputer control systems

<i>Period</i>	<i>Obligations</i>	
09/01/82-06/30/83	FY82: \$50,015	TOTAL: \$50,015
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shin, K. G.	LARC/Butler, R. W.	22-Computer Science
Kim, B. K.	LARC/Lupton, A. O.	

NAG 2-118 University of Michigan - Ann Arbor 3246
Computer tomography of flows external to test models

<i>Period</i>	<i>Obligations</i>	
06/01/81-08/31/82	FY82: \$9,978	TOTAL: \$49,857
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vest, C. M.	ARC/Lee, G.	41-Aero Engr

NAG 2-185 University of Michigan - Ann Arbor 3247
Investigations of responses using ground based vestibular research facility

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$26,418	TOTAL: \$26,418
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, D. J.	ARC/Daunton, N.	12-Chemistry

NAG 3-147 University of Michigan - Ann Arbor 3248
Development of a fast algorithm for combustion kinetics calculations

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82:	TOTAL: \$54,630
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Radhakrishnan, K.	LERC/Marek, C. J.	46-Mech Engr

NAG 3-168 University of Michigan - Ann Arbor 3249
A technology survey of the reciprocating aircraft engine liquid cooling system

<i>Period</i>	<i>Obligations</i>	
03/25/81-03/24/82	FY82:	TOTAL: \$19,624
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vangunst, R. W.	LERC/Willis, E.	41-Aero Engr

NAG 3-185 University of Michigan - Ann Arbor 3250
Research on social aspects of photovoltaic applications

<i>Period</i>	<i>Obligations</i>	
05/25/81-11/30/82	FY82: \$71,195	TOTAL: \$186,426
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roberts, A. F.	LERC/Marsik, S. J.	79-Soc Sci, NEC
	LERC/Bifano, W. J.	

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NAG 3-294 **University of Michigan - Ann Arbor** **3251**
 Monte Carlo calculations of nonreacting and reacting elliptical flows

<i>Period</i>	<i>Obligations</i>	
06/10/82-06/09/83	FY82: \$44,132	TOTAL: \$44,132
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Radhakrishnan, K.	LERC/Claus, R.	46-Mech Engr

NAG 8-354 **University of Michigan - Ann Arbor** **3258**
 High resolution X-ray observations of CD galaxies in rich clusters

<i>Period</i>	<i>Obligations</i>	
11/26/80-03/25/82	FY82:	TOTAL: \$1,378
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Richstone, D.	MSFC/Stone, J. F.	11-Astronomy

NAG 5-109 **University of Michigan - Ann Arbor** **3252**
 Doppler line profile measurement of the Jovian Lyman alpha emission

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/82	FY82:	TOTAL: \$16,276
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Atreya, S. K.	GSFC/Corrigan, J. P.	11-Astronomy

NAG 8-383 **University of Michigan - Ann Arbor** **3259**
 A search for globular cluster winds from soft X-ray observations

<i>Period</i>	<i>Obligations</i>	
11/26/80-05/25/82	FY82:	TOTAL: \$2,607
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cowley, A. P.	MSFC/Stone, J. F.	11-Astronomy

NAG 5-140 **University of Michigan - Ann Arbor** **3253**
 Processes of production and loss in the auroral zone and midlatitudes

<i>Period</i>	<i>Obligations</i>	
02/01/81-12/31/82	FY82:	TOTAL: \$24,714
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sharp, W. E.	GSFC/Spencer, N. W.	31-Atmos Sci

NAG 8-414 **University of Michigan - Ann Arbor** **3260**
 A search for an X-ray halo surrounding NCG 4565

<i>Period</i>	<i>Obligations</i>	
07/15/81-07/14/82	FY82:	TOTAL: \$4,942
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hegy, D. J.	MSFC/Stone, J. F.	11-Astronomy

NAG 5-183 **University of Michigan - Ann Arbor** **3254**
 Observations of symbiotic stars

<i>Period</i>	<i>Obligations</i>	
05/01/81-06/30/82	FY82:	TOTAL: \$6,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kirshner, R. P.	GSFC/Michalitsianos, A. G.	11-Astronomy

NAGW 15 **University of Michigan - Ann Arbor** **3261**
 Study in planetary aeronomy

<i>Period</i>	<i>Obligations</i>	
12/01/79-11/30/82	FY82: \$78,157	TOTAL: \$145,857
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cravens, T. E.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAG 5-230 **University of Michigan - Ann Arbor** **3255**
 Intercomparison measurement between rocket-borne and balloon-borne chemiluminescent nitric oxide payloads

<i>Period</i>	<i>Obligations</i>	
04/01/82-02/28/83	FY82: \$82,810	TOTAL: \$82,810
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Horvath, J. J.	GSFC/Reed, E. I.	31-Atmos Sci
Shetter, R. E.	GSFC/Frederick, J. E.	

NAGW 29 **University of Michigan - Ann Arbor** **3262**
 A ground based comparative study of the effects of weightlessness on the development of amphibian eggs

<i>Period</i>	<i>Obligations</i>	
12/15/79-01/14/83	FY82: \$60,000	TOTAL: \$180,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nace, G. W.	HQ-EB/Halstead, T. W.	51-Biological Sci

NAG 5-251 **University of Michigan - Ann Arbor** **3256**
 Observations of a symbiotic star in eclipse and two mass transfer X-ray binaries

<i>Period</i>	<i>Obligations</i>	
08/01/82-07/31/83	FY82: \$1,580	TOTAL: \$1,580
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cowley, A. P.	GSFC/Kondo, Y.	11-Astronomy
Hutchings, J. B.		

NAGW 32 **University of Michigan - Ann Arbor** **3263**
 Horizontal mapping of the thermal structures of the mesospheres at 85 and 97 kilometers

<i>Period</i>	<i>Obligations</i>	
02/01/80-12/31/82	FY82: \$45,333	TOTAL: \$83,537
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meriwether, J. W.	HQ-EB/Toth, R. A.	31-Atmos Sci
	HQ-EB/Seals, R. K., Jr.	

NAG 8-341 **University of Michigan - Ann Arbor** **3257**
 Search for X-rays from the Shabazyan I group of galaxies and search for X-rays from the supernova remnants in NCG 4449

<i>Period</i>	<i>Obligations</i>	
03/01/80-07/31/81	FY82:	TOTAL: \$13,896
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kirshner, R. P.	MSFC/Jones, J. B.	11-Astronomy
Winkler, P. F.		

NAGW 34 **University of Michigan - Ann Arbor** **3264**
 Investigation of the negative geotropic response in geosensitive pulvini of the oat plant (avena sativa)

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/83	FY82: \$46,758	TOTAL: \$135,009
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaufman, P. B.	HQ-EB/Halstead, T. W.	51-Biological Sci

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NAGW 176	University of Michigan - Ann Arbor	3265
Interaction of biota and atmosphere: The geological record		
<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$93,434	TOTAL: \$174,341
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, J. C.	HQ-EB/Devincenzi, D. L.	12-Chemistry
NAGW 252	University of Michigan - Ann Arbor	3266
Interdisciplinary study of Precambrian paleobiology		
<i>Period</i>	<i>Obligations</i>	
10/01/81-09/30/82	FY82: \$53,978	TOTAL: \$53,978
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hayes, J. M. Klein, C. Schopf, J. W.	HQ-EB/Devincenzi, D. L.	32-Geological Sci
NAGW 312	University of Michigan - Ann Arbor	3267
Atmospheric effects of auroral precipitation on Jupiter		
<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$34,778	TOTAL: \$34,778
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cravens, T. E.	HQ-EL/Brinton, H. C. HQ-EL/Brunk, W. L.	31-Atmos Sci
NAS 1-14394	University of Michigan - Ann Arbor	3268
Science support for the limb infrared monitor of the stratosphere experiment		
<i>Period</i>	<i>Obligations</i>	
04/09/76-09/30/82	FY82: \$20,116	TOTAL: \$130,625
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Drayson, S. R.	LARC/Sullivan, E. M.	31-Atmos Sci
NAS 1-16107	University of Michigan - Ann Arbor	3269
Sampling errors for regression statistics from complex sample designs		
<i>Period</i>	<i>Obligations</i>	
05/16/80-10/31/82	FY82:	TOTAL: \$17,607
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kalton, G. Vinter, S.	LARC/Clevenson, S.	79-Soc Sci, NEC
NAS 1-17008	University of Michigan - Ann Arbor	3270
High-toughness graphite/epoxy composite material experiment for the long duration exposure facility (LDEF)		
<i>Period</i>	<i>Obligations</i>	
07/29/82-08/28/84	FY82: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Felbeck, D. K.	LARC/Clark, L. G.	47-Materials Engr
NAS 2-9126	University of Michigan - Ann Arbor	3271
Interdisciplinary scientist, Pioneer Venus program		
<i>Period</i>	<i>Obligations</i>	
02/10/76-09/30/82	FY82: \$90,000	TOTAL: \$482,209
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Donahue, T. M.	ARC/Fimmel, R. D. ARC/Dyer, J.	11-Astronomy
NAS 2-9130	University of Michigan - Ann Arbor	3272
Interdisciplinary scientist, Pioneer Venus program		
<i>Period</i>	<i>Obligations</i>	
02/09/76-09/30/82	FY82: \$72,000	TOTAL: \$353,928
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nagy, A. F.	ARC/Fimmel, R. O. ARC/Dyer, J. W.	11-Astronomy
NAS 2-10535	University of Michigan - Ann Arbor	3273
Study of effects of space travel on mammalian gravity receptors		
<i>Period</i>	<i>Obligations</i>	
01/17/80-01/03/82	FY82: \$60,238	TOTAL: \$99,145
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ross, M.	ARC/Ferandin, J. A. ARC/Polson, P.	51-Biological Sci
NAS 2-10945	University of Michigan - Ann Arbor	3274
Study of the effect of weightlessness on the development of amphibian eggs fertilized in space		
<i>Period</i>	<i>Obligations</i>	
04/22/81-08/30/82	FY82:	TOTAL: \$19,592
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nace, G. W.	ARC/Tremor, J. W.	59-Life Sci, NEC
NAS 2-11225	University of Michigan - Ann Arbor	3275
Development of VRF experiment subsystem		
<i>Period</i>	<i>Obligations</i>	
05/18/82-02/15/83	FY82: \$11,284	TOTAL: \$11,284
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, D. J.	ARC/Mah, R. W.	49-Engr, NEC
NAS 5-11376	University of Michigan - Ann Arbor	3276
Ae-C, D, and E pelz experiment		
<i>Period</i>	<i>Obligations</i>	
01/07/71-05/30/83	FY82: \$15,000	TOTAL: \$1,193,819
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Hedin, A. E. GSFC/Spencer, N. W.	31-Atmos Sci
NAS 5-11380	University of Michigan - Ann Arbor	3277
Ae-C, D, and E neutral temperature experiment		
<i>Period</i>	<i>Obligations</i>	
02/03/71-03/30/83	FY82: \$33,000	TOTAL: \$1,201,050
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci
NAS 5-23006	University of Michigan - Ann Arbor	3278
Atmosphere Explorer visual airglow photometer		
<i>Period</i>	<i>Obligations</i>	
08/24/71-03/31/83	FY82: \$140,151	TOTAL: \$2,171,815
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hays, P. B.	GSFC/Bullock, G. D.	31-Atmos Sci
NAS 5-24296	University of Michigan - Ann Arbor	3279
Fabry-Perot interferometer for the Dynamic Explorer		
<i>Period</i>	<i>Obligations</i>	
07/26/77-09/30/81	FY82:	TOTAL: \$1,661,869
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hays, P. B.	GSFC/Fellerman, K. D.	13-Physics

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NAS 5-24331 University of Michigan - Ann Arbor 3280
Theoretical investigation to identify and develop specific aeronomic studies and problems adaptable to the AE satellite

<i>Period</i>	<i>Obligations</i>	
12/01/77-03/31/83	FY82: \$115,000	TOTAL: \$491,576
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, J. C.	GSFC/Bullock, G. D.	31-Atmos Sci

NAS 5-25409 University of Michigan - Ann Arbor 3287
Protoflight Langmuir probe instrument for Dynamics Explorer

<i>Period</i>	<i>Obligations</i>	
11/27/78-12/31/81	FY82:	TOTAL: \$86,547
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Krehbiel, J. P.	13-Physics

NAS 5-25002 University of Michigan - Ann Arbor 3281
Wind and temperature spectrometer for the Dynamics Explorer spacecraft

<i>Period</i>	<i>Obligations</i>	
03/30/78-09/30/83	FY82: \$8,000	TOTAL: \$665,352
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci

NAS 5-25691 University of Michigan - Ann Arbor 3288
Data analysis for Fabry-Perot-interferometer for Dynamics Explorer project

<i>Period</i>	<i>Obligations</i>	
02/10/80-07/31/83	FY82: \$194,717	TOTAL: \$326,717
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hays, P.	GSFC/Bullock, G.	41-Aero Engr

NAS 5-25031 University of Michigan - Ann Arbor 3282
Develop, fabricate, test, and support hardware for the San Marco/wind and temperature experiment

<i>Period</i>	<i>Obligations</i>	
05/05/78-09/30/83	FY82: \$136,928	TOTAL: \$769,088
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci
Maurer, J. M.	GSFC/Adkins, R.	

NAS 5-25916 University of Michigan - Ann Arbor 3289
Atmosphere Explorer Dynamics Explorer, and San Marco data software development

<i>Period</i>	<i>Obligations</i>	
09/27/79-09/26/82	FY82:	TOTAL: \$18,682
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G.	GSFC/Spencer, N. W.	13-Physics

NAS 5-25038 University of Michigan - Ann Arbor 3283
Theory formulation and analysis support for the Dynamics Explorer spacecraft

<i>Period</i>	<i>Obligations</i>	
08/22/78-07/31/83	FY82: \$57,000	TOTAL: \$162,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nagy, A. F.	GSFC/Branchflower, W.	13-Physics

NAS 5-26069 University of Michigan - Ann Arbor 3290
NACS experiment for Dynamics Explorer project

<i>Period</i>	<i>Obligations</i>	
02/10/80-07/31/83	FY82: \$75,000	TOTAL: \$140,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G.	GSFC/Bullock, G.	41-Aero Engr

NAS 5-25145 University of Michigan - Ann Arbor 3284
Electronic system parts for Galileo probe neutral mass spectrometer

<i>Period</i>	<i>Obligations</i>	
07/31/78-02/01/83	FY82: \$25,762	TOTAL: \$223,766
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G.	GSFC/Nieman, H.	31-Atmos Sci
	GSFC/Way, S.	

NAS 5-26169 University of Michigan - Ann Arbor 3291
Definition phase of the high resolution Doppler image (HRDI) for the upper atmosphere research satellites program (UARS)

<i>Period</i>	<i>Obligations</i>	
09/24/80-12/31/82	FY82: \$718,677	TOTAL: \$1,073,069
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hays, P. B.	GSFC/Brown, W. H.	31-Atmos Sci

NAS 5-25153 University of Michigan - Ann Arbor 3285
Fabrication of electronic system for the Galileo probe neutral mass spectrometer

<i>Period</i>	<i>Obligations</i>	
08/10/78-12/31/82	FY82: \$368,902	TOTAL: \$1,184,845
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G.	GSFC/Nieman, H.	31-Atmos Sci
	GSFC/Way, S.	

NAS 5-26189 University of Michigan - Ann Arbor 3292
Generate an investigation development plan and establish the preliminary interfaces between the orbiter and instrument for the high resolution Doppler imager

<i>Period</i>	<i>Obligations</i>	
06/09/80-05/08/82	FY82:	TOTAL: \$451,564
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hayes, P. B.	GSFC/Browne, W.	31-Atmos Sci

NAS 5-25158 University of Michigan - Ann Arbor 3286
CMOS radiation effects measurement (CREM) experiment and associated ground support equipment (GSE)

<i>Period</i>	<i>Obligations</i>	
08/16/78-12/30/83	FY82:	TOTAL: \$488,426
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carignan, G. R.	GSFC/Haykin, D.	13-Physics
	GSFC/Cliff, R.	

NAS 5-26678 University of Michigan - Ann Arbor 3293
Conduct design study for Venus orbiting image radar probe

<i>Period</i>	<i>Obligations</i>	
09/04/81-12/03/82	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nagy, A. F.	GSFC/Brace, L. H.	31-Atmos Sci
Corrigan, G.		

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NAS 5-26840 University of Michigan - Ann Arbor 3294
Preliminary design of the Venus orbiting imaging radar (VOIR)
wind and temperature spectrometer (WATS) instrument
Period *Obligations*
01/21/82-11/20/82 FY82: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carignan, G. R. GSFC/Spencer, N. 11-Astronomy

NAS 5-27305 University of Michigan - Ann Arbor 3295
Design study of advanced langmuir probe breadboard
Period *Obligations*
07/16/82-07/16/83 FY82: \$14,000 TOTAL: \$14,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable GSFC/Brace, L. H. 45-Elec Engr

NAS 6-2794 University of Michigan - Ann Arbor 3296
Design, fabricate and test five payloads
Period *Obligations*
10/15/76-02/28/82 FY82: \$892,020 TOTAL: \$892,020
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horvath, J. J. GSFC/Frostrom, R. J., Jr. 31-Atmos Sci
WFC/Perry, T. W., Jr.

NAS 8-31987 University of Michigan - Ann Arbor 3297
Mass spectrometer for induced environment contamination
monitor
Period *Obligations*
04/30/76-11/15/81 FY82: \$12,688 TOTAL: \$741,339
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carignan, G. R. MSFC/Miller, F. R. 19-Phys Sci, NEC
Maurer, J. C. MSFC/Wills, F. D.
Eusch, T. A.

NAS 8-32332 University of Michigan - Ann Arbor 3298
Retarding ion mass spectrometer on the high electrodynamic
ic
Period *Obligations*
01/17/77-12/31/80 FY82: \$48,614 TOTAL: \$48,614
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carignan, G. R. MSFC/Chappell, C. R. 19-Phys Sci, NEC
MSFC/Fields, S. A.

NAS 8-32569 University of Michigan - Ann Arbor 3299
Spacelab mission 1 experiment 24: An imaging spectrometric
observatory for Spacelab 1
Period *Obligations*
04/15/77-05/31/82 FY82: \$3,265,745 TOTAL: \$3,265,745
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Torr, M. R. MSFC/Jones, C. T. 19-Phys Sci, NEC

NAS 8-32661 University of Michigan - Ann Arbor 3300
Spacelab outgassing
Period *Obligations*
09/20/77-12/31/82 FY82: \$95,716 TOTAL: \$273,716
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carignan, G. R. MSFC/Miller, E. R. 39-Env Sci, NEC
MSFC/Wills, F. D.

NAS 8-34533 University of Michigan - Ann Arbor 3301
Retarding ion mass spectrometer (RIMS) data analysis
Period *Obligations*
09/02/81-01/02/83 FY82: \$12,700 TOTAL: \$18,643
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nagy, A. F. MSFC/Fields, S. A. 13-Physics

NAS 8-34910 University of Michigan - Ann Arbor 3302
Study definition phase for thermal ion dynamics experiment for
OPEN
Period *Obligations*
08/26/82-10/26/83 FY82: \$28,124 TOTAL: \$28,124
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sharp, W. E. MSFC/Chappell, R. 11-Astronomy

NAS 9-15244 University of Michigan - Ann Arbor 3303
Evaluations of postural mechanisms under dynamic conditions
Period *Obligations*
02/01/77-09/01/83 FY82: \$38,198 TOTAL: \$265,069
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, D. J. JSC/Homick, J. L. 56-Medical Sciences

NAS 9-15375 University of Michigan - Ann Arbor 3304
Definition of Spacelab 1 experiment for adaptation of vestibulo-
spinal reflex mechanisms during space flight
Period *Obligations*
06/01/77-12/01/83 FY82: \$57,500 TOTAL: \$258,845
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, D. J. JSC/Reschke, M. F. 59-Life Sci, NEC

NCA 2-440101 University of Michigan - Ann Arbor 3305
LANDSAT land-use/land-cover map accuracy assessment
Period *Obligations*
05/01/81-09/30/81 FY82: \$16,703 TOTAL: \$16,703
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Taketa, R. ARC/Jones, H. W. 32-Geological Sci

NCC 2-201 University of Michigan - Ann Arbor 3306
Microprocessor studies in computational chemistry
Period *Obligations*
08/01/82-07/31/83 FY82: \$37,011 TOTAL: \$37,011
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Calahan, D. A. ARC/Bauschlicher, C. W.
22-Computer Science

NCC 3-11 University of Michigan - Ann Arbor 3307
Interdisciplinary collaboration in tribology
Period *Obligations*
06/05/80-03/30/83 FY82: \$49,998 TOTAL: \$82,364
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ludema, K. C. LERC/Wedeven, L. D. 46-Mech Engr
Devries, W. R.

NGR 23-005-015 University of Michigan - Ann Arbor 3308
Theoretical investigation of space charge waves in ionosphere
and space plasma sheaths
Period *Obligations*
10/28/63-06/31/83 FY82: \$160,595 TOTAL: \$2,119,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nagy, A. F. HQ-EE/Benson, R. F. 13-Physics
HQ-EZ/Schmerling, E. R.

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NGR 23-005-320 University of Michigan - Ann Arbor 3309
Theoretical and experimental studies of spacecraft space plasma interactions

<i>Period</i>	<i>Obligations</i>	
01/29/69-07/31/83	FY82: \$63,000	TOTAL: \$710,557
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Samir, U.	HQ-EE/Benson, R. F.	13-Physics
	HQ-EE/Schmerling, E. R.	

NGR 23-005-360 University of Michigan - Ann Arbor 3310
A program in aeronomy

<i>Period</i>	<i>Obligations</i>	
12/29/69-01/31/83	FY82: \$179,610	TOTAL: \$2,135,836
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sharp, W. E.	GSFC/Early, L. J.	13-Physics

NGR 23-005-464 University of Michigan - Ann Arbor 3311
Optical studies of galactic X-ray sources

<i>Period</i>	<i>Obligations</i>	
03/02/71-02/28/83	FY82:	TOTAL: \$185,688
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hiltner, W. A.	HQ-EZ/Weiler, E. J.	11-Astronomy

NGR 23-005-528 University of Michigan - Ann Arbor 3312
Fiber-reinforced solids possessing great fracture toughness and the role of interfacial strength

<i>Period</i>	<i>Obligations</i>	
07/26/72-06/30/81	FY82:	TOTAL: \$223,394
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Falbeck, D. K.	LARC/Fichter, W. B.	47-Materials Engr

NGT 23-005-800 University of Michigan - Ann Arbor 3313
Methods of geobotanical prospecting graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$13,000	TOTAL: \$38,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Olson, C. E.	HQ-LB/Carter, C. H.	32-Geological Sci

NSG 1306 University of Michigan - Ann Arbor 3314
Models and techniques for evaluating the effectiveness of aircraft computing systems

<i>Period</i>	<i>Obligations</i>	
05/01/76-06/30/82	FY82:	TOTAL: \$352,107
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meyer, J. F.	LARC/Migneault, G. E.	45-Elec Engr
	LARC/Bavuso, S. J.	

NSG 1607 University of Michigan - Ann Arbor 3315
Heat generation during cornering and breaking in aircraft tires

<i>Period</i>	<i>Obligations</i>	
09/01/79-06/14/83	FY82: \$47,893	TOTAL: \$184,968
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, S. K.	LARC/McCarty, J. L.	41-Aero Engr
	LARC/Tanner, J. A.	

NSG 3192 University of Michigan - Ann Arbor 3316
Morphology of Kevlar fibers

<i>Period</i>	<i>Obligations</i>	
04/10/78-07/31/81	FY82:	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yeh, G. S.	LERC/Lauver, R. W.	47-Materials Engr

NSG 5189 University of Michigan - Ann Arbor 3317
Direct measurements of photolysis rates of stratospheric constituents

<i>Period</i>	<i>Obligations</i>	
08/01/77-10/31/82	FY82: \$50,672	TOTAL: \$334,695
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stedman, D. H.	GSFC/Reed, E. I.	31-Atmos Sci
	Shetter, R. E.	

NSG 7209 University of Michigan - Ann Arbor 3318
A program of stratospheric research

<i>Period</i>	<i>Obligations</i>	
01/01/76-03/31/81	FY82:	TOTAL: \$594,030
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cochran, J. L.	HQ-EB/Watson, R. T.	31-Atmos Sci

NSG 7308 University of Michigan - Ann Arbor 3319
The physical and chemical properties of the prebiotic atmosphere

<i>Period</i>	<i>Obligations</i>	
02/01/77-03/31/83	FY82: \$27,473	TOTAL: \$153,598
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kuhn, W. R.	HQ-EB/Devincenzi, D. L.	31-Atmos Sci

NSG 7404 University of Michigan - Ann Arbor 3320
A program for research in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
10/01/77-01/31/83	FY82: \$97,282	TOTAL: \$365,428
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Atreya, S. K.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NSG 7452 University of Michigan - Ann Arbor 3321
Bio-chirality search with variable helicity positrons

<i>Period</i>	<i>Obligations</i>	
07/01/78-01/31/83	FY82: \$19,000	TOTAL: \$155,541
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rich, A.	HQ-EB/Devincenzi, D. L.	
Gidley, D. W.		51-Biological Sci

NSG 9047 University of Michigan - Ann Arbor 3322
Mammalian gravity receptors: Structure and metabolism

<i>Period</i>	<i>Obligations</i>	
11/01/76-10/31/82	FY82: \$65,000	TOTAL: \$290,051
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ross, M. D.	HQ-EB/Halstead, T. W.	51-Biological Sci

NAG 1-113 Wayne State University 3323
Analysis of some acoustics-jet flow interaction problems

<i>Period</i>	<i>Obligations</i>	
11/10/80-12/09/82	FY82: \$10,838	TOTAL: \$21,148
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chow, P. L.	LARC/Maestrello, L.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)**

NAG 2-39 Wayne State University 3324
Development of absorption technique for OH measurements in ambient air
Period *Obligations*
05/01/80-12/31/82 FY82: \$44,800 TOTAL: \$184,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, C. C. ARC/Margozzi, A. P. 31-Atmos Sci

NSG 1330 Wayne State University 3325
Analytical modeling of noise source in a moving jet
Period *Obligations*
08/17/76-03/31/81 FY82: TOTAL: \$35,616
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chow, P. L. LARC/Maestrello, L. 41-Aero Engr

NAG 3-92 Western Michigan University 3326
Aircraft engine condition monitoring by vibration and sound frequency spectrum analysis
Period *Obligations*
08/18/80-12/31/81 FY82: TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Behm, H. D. LERC/Schmidt, H. W. 41-Aero Engr
Hathaway, R.
Cummings, J. W.

NASW 3544 Western Michigan University 3327
Manuscript for teachers of industrial arts and vocational education
Period *Obligations*
11/16/81-06/30/83 FY82: \$13,200 TOTAL: \$13,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lindbeck, J. R. HQ-LC/Thorne, M. M. 79-Soc Sci, NEC
Atkins, M. B. HQ-LC/Nixon, W. D.
Darling, D. D.

MINNESOTA

NSG 5285 Augsburg College 3328
Analysis of long-term density variations of atomic nitrogen
Period *Obligations*
07/01/78-12/31/82 FY82: TOTAL: \$54,675
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Engbretson, M. J. GSFC/Spencer, N. W. 31-Atmos Sci

NAG 3-165 University of Minnesota-Duluth 3329
Water quality measurements through use of Nimbus 7 coastal zone color scanner data
Period *Obligations*
03/15/81-12/05/82 FY82: TOTAL: \$223,808
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sydor, M. LERC/Shook, D. 13-Physics

NAG 1-99 Univ of Minnesota - Minneapolis-St Paul 3330
Increasing the damping in composite truss members
Period *Obligations*
09/01/80-06/15/82 FY82: TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Plunkett, R. LARC/Card, M. F. 47-Materials Engr

NAG 1-217 Univ of Minnesota - Minneapolis-St Paul 3331
Eigenspace techniques for active flutter suppression
Period *Obligations*
10/01/81-12/31/82 FY82: \$28,587 TOTAL: \$28,587
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Garrard, W. L. LARC/Adams, W. M., Jr. 41-Aero Engr

NAG 1-278 Univ of Minnesota - Minneapolis-St Paul 3332
Craze micromechanics in viscoelastic aerospace materials
Period *Obligations*
06/01/82-05/31/83 FY82: \$55,000 TOTAL: \$55,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hsiao, C. C. LARC/Eiber, W. 47-Materials Engr
LARC/Newman, J. C., Jr.

NAG 2-4 Univ of Minnesota - Minneapolis-St Paul 3333
A subsurface panel method
Period *Obligations*
11/01/79-10/31/82 FY82: TOTAL: \$79,412
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moran, J. P. ARC/Chapman, G. T. 41-Aero Engr

NAG 2-31 Univ of Minnesota - Minneapolis-St Paul 3334
Condensation nuclei measurements in the stratosphere for the NASA space program
Period *Obligations*
02/01/80-01/31/83 FY82: \$51,000 TOTAL: \$179,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liu, B. Y. ARC/Margozzi, A. P. 31-Atmos Sci
Wilson, J. C.

NAG 2-63 Univ of Minnesota - Minneapolis-St Paul 3335
Drop dynamics and breakup
Period *Obligations*
08/01/80-06/30/82 FY82: \$37,000 TOTAL: \$80,075
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scriven, L. E. ARC/Brooks, W. F. 13-Physics

NAG 3-161 Univ of Minnesota - Minneapolis-St Paul 3336
Studies of acoustical properties of bulk porous flexible fibrous materials
Period *Obligations*
02/20/81-02/19/84 FY82: TOTAL: \$84,345
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lambert, R. F. LERC/Rice, E. J. 13-Physics
LERC/Baumeister, K. J.

NAG 3-286 Univ of Minnesota - Minneapolis-St Paul 3337
Boundary layer transition investigation on curved surfaces
Period *Obligations*
06/01/82-11/30/83 FY82: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simon, T. W. LERC/Gaugler, R. E. 46-Mech Engr
LERC/Brigham, B. A.

**NASA'S UNIVERSITY PROGRAM
MINNESOTA (Continued)**

NAG 5-190 Univ of Minnesota - Minneapolis-St Paul 3338
Study of variable extinction of hot stars with circumstellar dust shells

<i>Period</i>	<i>Obligations</i>	
07/01/81-03/31/83	FY82: \$2,000	TOTAL: \$8,018
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sitko, M. L.	GSFC/Kondo, Y.	11-Astronomy
Stein, W. A.		

NAS 5-26056 Univ of Minnesota - Minneapolis-St Paul 3345
Generate an investigation development plan and establish the preliminary interfaces between the space transportation system/ Spacelab and instrument per high energy interactions of cosmic rays

<i>Period</i>	<i>Obligations</i>	
02/14/80-03/31/83	FY82:	TOTAL: \$328,409
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waddington, C. J.	GSFC/Sing, M.	11-Astronomy

NAG 5-191 Univ of Minnesota - Minneapolis-St Paul 3339
Ultraviolet spectroscopy of supergiants

<i>Period</i>	<i>Obligations</i>	
07/01/81-12/31/82	FY82: \$3,200	TOTAL: \$9,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Humphreys, R. M.	GSFC/Kondo, Y.	11-Astronomy

NAS 8-27977 Univ of Minnesota - Minneapolis-St Paul 3346
Design, development, and operation of Cerenkov portion of the ACR-7 heavy nuclei experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/16/72-09/30/82	FY82: \$171,219	TOTAL: \$1,769,908
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waddington, C. J.	MSFC/Stone, J. F.	11-Astronomy

NAG 6-11 Univ of Minnesota - Minneapolis-St Paul 3340
Investigation of auroral electrodynamics and argon release for controlled studies (ARCS)

<i>Period</i>	<i>Obligations</i>	
04/23/81-04/22/83	FY82: \$67,835	TOTAL: \$67,835
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cahill, L. J.	GSFC/Early, L. J.	19-Phys Sci, NEC
Kintner, P. M.	WFC/Pless, P. H.	

NAS 9-16427 Univ of Minnesota - Minneapolis-St Paul 3347
Sunflower stress identification study

<i>Period</i>	<i>Obligations</i>	
08/24/81-10/31/82	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lillesand, T. M.	JSC/Whitehead, V. S.	39-Env Sci, NEC

NAS 5-11310 Univ of Minnesota - Minneapolis-St Paul 3341
A.C. Electric fields experiment Helios

<i>Period</i>	<i>Obligations</i>	
06/29/70-12/31/82	FY82: \$9,000	TOTAL: \$1,577,222
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Wales, R. O.	11-Astronomy

NGL 24-005-009 Univ of Minnesota - Minneapolis-St Paul 3348
Development and application of mass spectrometers to studies of Earth's upper atmosphere and planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
08/01/62-01/31/83	FY82: \$40,000	TOTAL: \$2,013,682
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nier, A. O.	HQ-EL/Britton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAS 5-11438 Univ of Minnesota - Minneapolis-St Paul 3342
Open source neutral mass spectrometers for AE spacecraft, missions C, D, and E

<i>Period</i>	<i>Obligations</i>	
06/15/71-11/30/82	FY82: \$24,000	TOTAL: \$1,364,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nier, A. O.	GSFC/Bullock, G.	31-Atmos Sci

NGL 24-005-225 Univ of Minnesota - Minneapolis-St Paul 3349
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/26/71-01/31/83	FY82: \$130,000	TOTAL: \$1,230,349
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peplin, R. O.	JSC/Dietrich, J. W.	13-Physics

NAS 5-25389 Univ of Minnesota - Minneapolis-St Paul 3343
Dynamic Explorer A and B magnetometer experiment support

<i>Period</i>	<i>Obligations</i>	
11/08/78-12/31/82	FY82: \$66,941	TOTAL: \$115,941
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cahill, L. J., Jr.	GSFC/Sugiura, M.	11-Astronomy

NGL 24-005-263 Univ of Minnesota - Minneapolis-St Paul 3350
Study of Minnesota forests and lakes using data from Earth resources technology satellites

<i>Period</i>	<i>Obligations</i>	
07/06/72-12/31/82	FY82:	TOTAL: \$635,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hobbie, R. K.	HQ-EL/Vitale, J. A.	39-Env Sci, NEC

NAS 5-25753 Univ of Minnesota - Minneapolis-St Paul 3344
Selected hardware for unified radio and plasma wave experiment for International Solar Mission

<i>Period</i>	<i>Obligations</i>	
07/03/79-09/30/85	FY82: \$317,426	TOTAL: \$959,912
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Klein, B.	11-Astronomy

NGR 24-005-050 Univ of Minnesota - Minneapolis-St Paul 3351
Measurement of the gamma ray flux of various celestial point sources from high altitude balloons

<i>Period</i>	<i>Obligations</i>	
04/21/65-12/31/82	FY82: \$129,200	TOTAL: \$1,274,708
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waddington, C. J.	HQ-EZ/Kaluziński, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

**NASA'S UNIVERSITY PROGRAM
MINNESOTA (Continued)**

NSG 1431 Univ of Minnesota - Minneapolis-St Paul 3352
Neutral constituent measurements in the stratosphere

<i>Period</i>	<i>Obligations</i>	
07/01/77-09/30/82	FY82: \$124,857	TOTAL: \$530,691
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mauersberger, K.	LARC/Beswick, A. G.	31-Atmos Sci
Nier, A. O.		

NSG 2014 Univ of Minnesota - Minneapolis-St Paul 3353
Exploratory astrophysics and infrared astronomy

<i>Period</i>	<i>Obligations</i>	
02/01/74-03/31/83	FY82:	TOTAL: \$494,929
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ney, E.	HQ-EZ/Boggess, N. W.	11-Astronomy

NSG 5088 Univ of Minnesota - Minneapolis-St Paul 3354
Magnetospheric physics phenomena using sounding rockets

<i>Period</i>	<i>Obligations</i>	
11/01/75-01/31/83	FY82: \$215,000	TOTAL: \$1,209,593
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winckler, J. R.	GSFC/Early, L. J.	13-Physics

NSG 5373 Univ of Minnesota - Minneapolis-St Paul 3355
Experiments employing a rocket-borne electron accelerator

<i>Period</i>	<i>Obligations</i>	
06/15/79-02/28/83	FY82: \$57,230	TOTAL: \$185,250
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kellogg, P. J.	GSFC/Early, L. J.	13-Physics
Bernstein, W.		

NSG 5397 Univ of Minnesota - Minneapolis-St Paul 3356
Observations of emission lines in the Crab nebula

<i>Period</i>	<i>Obligations</i>	
08/01/79-09/30/83	FY82: \$3,700	TOTAL: \$20,520
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Davidson, K.	GSFC/Kondo, Y.	11-Astronomy
Walborn, N. R.		
Gull, T. R.		

NSG 6021 Univ of Minnesota - Minneapolis-St Paul 3357
Rocket study of auroral processes

<i>Period</i>	<i>Obligations</i>	
06/01/78-12/31/81	FY82:	TOTAL: \$233,075
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cahill, L. J.	GSFC/Early, L. J.	19-Phys Sci, NEC

NSG 9050 Univ of Minnesota - Minneapolis-St Paul 3358
Petrologic study of returned lunar samples

<i>Period</i>	<i>Obligations</i>	
02/01/77-12/31/82	FY82:	TOTAL: \$82,063
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weiblen, P. W.	JSC/Dietrich, J. W.	32-Geological Sci

MISSISSIPPI

NSG 8036 Alcorn State University 3359
Bio-gas production from alligator weeds

<i>Period</i>	<i>Obligations</i>	
06/01/76-04/31/82	FY82:	TOTAL: \$114,713
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Latif, A.	NSTL/Wolverton, B. C.	51-Biological Sci

NAG 5-158 Jackson State University 3360
Electronic and molecular structure of gaseous ions in interstellar space

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$67,740	TOTAL: \$134,740
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Perkins, J.	GSFC/Miller, G. E.	31-Atmos Sci

NSG 736 Jackson State University 3361
LANDSAT study of urban land use Jackson, MS

<i>Period</i>	<i>Obligations</i>	
08/13/79-01/12/82	FY82:	TOTAL: \$171,609
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lang, M.	NSTL/Atwell, B. H.	32-Geological Sci
Choi, Y.		

NSG 8026 Jackson State University 3362
Aquatic plants as filtration systems for chlorinated hydrocarbons

<i>Period</i>	<i>Obligations</i>	
06/01/75-08/31/81	FY82:	TOTAL: \$217,633
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shores, F.	NSTL/Wolverton, B. C.	39-Env Sci, NEC

NAG 1-3 Mississippi State University 3363
Investigation of flight test methods for the performance of general aviation aircraft

<i>Period</i>	<i>Obligations</i>	
11/01/79-02/31/82	FY82:	TOTAL: \$113,480
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bull, G.	LARC/Holmes, B. J.	41-Aero Engr
Bridges, P. D.	LARC/Brown, P. W.	

NAG 1-226 Mississippi State University 3364
Transonic viscous-inviscid interaction using Euler and inverse boundary-layer equations

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$32,000	TOTAL: \$32,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Whitfield, D. L.	LARC/Thames, F. C.	41-Aero Engr
	LARC/Woyer, D. L.	

NAS 8-33448 Mississippi State University 3365
High density circuits technology

<i>Period</i>	<i>Obligations</i>	
07/13/79-02/28/82	FY82:	TOTAL: \$64,131
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wade, T. E.	MSFC/Dehaye, R. F.	45-Elec Engr
	MSFC/Gould, J.	

**NASA'S UNIVERSITY PROGRAM
MISSISSIPPI (Continued)**

NAS 8-33450	Mississippi State University	3366	NAS13-158	Mississippi State University	3373
Electron lithography star design guidelines			To provide remote sensing workshops for state government personnel		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/02/79-08/31/82	FY82: TOTAL: \$79,069		07/29/80-07/28/81	FY82: TOTAL: \$12,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Causey, W. H.	MSFC/Edge, T. M.	45-Elec Engr	Miller, W. F.	NSTL/Atwell, B. H.	32-Geological Sci
	MSFC/Routh, D. E.				
NAS 8-33570	Mississippi State University	3367	NCC 2-184	Mississippi State University	3374
Research study: Analysis of space telescope collection systems			Computation of transonic viscous-inviscid interacting flow		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/26/79-05/31/82	FY82: \$34,982 TOTAL: \$96,345		04/01/82-09/30/82	FY82: \$3,929 TOTAL: \$3,929	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingels, F. M.	MSFC/Thomas, J. H.	11-Astronomy	Whitefield, D. L.	ARC/Horstman, C. C.	41-Aero Engr
	MSFC/Coffey, R. D.			ARC/Marvin, J. G.	
NAS 8-33887	Mississippi State University	3368	NGL 25-001-054	Mississippi State University	3375
Research study: A study of high density bit transition requirements versus the effects on BCH error coding			Application of remotely sensed data to state and regional problems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/80-12/31/82	FY82: \$9,976 TOTAL: \$49,683		11/01/73-10/30/84	FY82: TOTAL: \$1,050,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingels, F. M.	MSFC/Sieler, B. K.	45-Elec Engr	Miller, W. F.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC
	MSFC/Coffey, R. D.				
NAS 8-34906	Mississippi State University	3369	NGR 25-001-055	Mississippi State University	3376
A study of high density bit transition requirements versus the effects on error correcting code			Numerical solution of the Navier-Stokes equations for arbitrary two-dimensional multi-element airfoils		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/26/82-11/26/84	FY82: \$30,757 TOTAL: \$30,757		01/01/74-02/28/83	FY82: \$35,000 TOTAL: \$298,210	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ingels, F. M.	MSFC/Emens, F. H.	22-Computer Science	Thompson, J. F.	LARC/Thames, F. C.	41-Aero Engr
				LARC/South, J. C., Jr.	
NAS 8-34907	Mississippi State University	3370	NGT 25-001-801	Mississippi State University	3377
Temperature profiling system study			Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/29/82-12/28/82	FY82: \$29,031 TOTAL: \$29,031		08/01/82-07/31/83	FY82: \$13,000 TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beiting, J.	MSFC/Powers, W. T.	19-Phys Sci, NEC	Mitchell, J. R.	HQ-LB/Carter, C. H.	45-Elec Engr
NAS 9-16273	Mississippi State University	3371	NGT 25-006-800	Mississippi State University	3378
Study of uncertainty analysis of projections of increased skin cancer incidence resulting from ozone reduction/increased UV-B			Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/81-12/31/82	FY82: TOTAL: \$9,991		06/01/82-05/31/83	FY82: \$13,000 TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rundel, R.	JSC/Nachtwey, D. S.	13-Physics	Ingels, F. M.	HQ-LB/Carter, C. H.	45-Elec Engr
NASW 3552	Mississippi State University	3372	NSG 1577	Mississippi State University	3379
Symposium on numerical grid generation			Transformation of two and three dimensional regions by elliptic systems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
12/23/81-09/30/82	FY82: \$37,601 TOTAL: \$37,601		11/15/78-11/14/82	FY82: \$25,969 TOTAL: \$96,564	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thompson, J. F.	HQ-RT/Graves, R. A.	29-Math/Computer, NEC	Thompson, J. F.	LARC/Smith, R. E., Jr.	21-Mathematics
			Mastin, C. W.	LARC/Shoosmith, J. N.	

**NASA'S UNIVERSITY PROGRAM
MISSISSIPPI (Continued)**

NSG 1623 **Mississippi State University** **3380**
Theoretical investigation of high-lift aerodynamics
Period *Obligations*
08/20/79-03/31/83 **FY82: \$57,267** **TOTAL: \$175,951**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bennett, A. G. LARC/Liu, C. H. 41-Aero Engr
Thompson, J. F.

NAGW 46 **University of Missouri - Columbia** **3387**
Development of remote sensing experience at the University of Missouri-Columbia
Period *Obligations*
04/01/80-04/30/85 **FY82: \$100,000** **TOTAL: \$385,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johannsen, C. J. HQ-EL/Tuyahov, A. J. 39-Env Sci, NEC

NSG 1539 **Mississippi University For Women** **3381**
Monomers for thermosetting and toughening epoxy resins
Period *Obligations*
06/15/78-12/31/82 **FY82: \$37,439** **TOTAL: \$128,466**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pratt, J. R. LARC/St.Clair, T. L. 12-Chemistry

NAGW 170 **University of Missouri - Columbia** **3388**
Galilean satellite mapping programs
Period *Obligations*
04/01/81-03/31/83 **FY82: \$2,745** **TOTAL: \$12,745**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Whitford-stark H, J. L. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAG 1-49 **University of Southern Mississippi** **3382**
A photoionization mass spectrometer study of carbon vapor
Period *Obligations*
03/01/80-09/30/82 **FY82: \$3,000** **TOTAL: \$29,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rayborn, G. H. LARC/Jones, J. J. 13-Physics

NAGW 243 **University of Missouri - Columbia** **3389**
Photogeologic and remote sensing analysis of planetary volcanism and tectonics
Period *Obligations*
10/01/81-09/30/82 **FY82: \$9,370** **TOTAL: \$9,370**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Whitford-stark, J. L. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAS13-95 **University of Southern Mississippi** **3383**
Demonstration and evaluation of EMS telemetry capability in remote areas using synchronous satellite communications technology
Period *Obligations*
07/17/78-05/31/81 **FY82:** **TOTAL: \$274,236**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brundage, W. G. NSTL/Whitley, S. L. 49-Engr, NEC

NAS 8-31150 **University of Missouri - Columbia** **3390**
Research study of microphysical processes in atmospheric clouds
Period *Obligations*
02/11/75-06/30/81 **FY82:** **TOTAL: \$116,480**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tung, C. MSFC/Smith, R. E. 31-Atmos Sci
Hale, B. N. MSFC/Anderson, B. J.

MISSOURI

NAG13-1 **Lincoln University - Mo.** **3384**
LANDSAT study relating soil zinc content to diabetes
Period *Obligations*
01/02/80-07/01/81 **FY82:** **TOTAL: \$54,844**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Molnar, I. G. NSTL/Atwell, B. H. 59-Life Sci, NEC

NAS 8-31849 **University of Missouri - Columbia** **3391**
Cloud physics laboratory science simulator
Period *Obligations*
04/29/76-11/14/81 **FY82:** **TOTAL: \$319,958**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kassner, J. L., Jr. MSFC/Smith, R. C. 31-Atmos Sci
MSFC/Anderson, B. J.

NAS 8-33370 **Saint Louis University** **3385**
Kinetic energy budgets in areas of intense convections
Period *Obligations*
04/01/79-07/08/83 **FY82: \$61,558** **TOTAL: \$176,078**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fuelburg, H. E. MSFC/Hill, K. 31-Atmos Sci
MSFC/Turner, R. E.

NAS 9-15477 **University of Missouri - Columbia** **3392**
Development and verification of simulation models for analyzing orbiter digital communications and data links
Period *Obligations*
01/01/78-12/15/82 **FY82: \$14,566** **TOTAL: \$69,566**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tranter, W. H. JSC/Eggleston, T. W. 45-Elec Engr

NGT 26-006-800 **Saint Louis University** **3386**
Graduate student researchers program
Period *Obligations*
04/01/82-05/31/83 **FY82: \$11,175** **TOTAL: \$11,175**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fuelberg, H. E. HQ-LB/Carter, C. H. 21-Mathematics

NAS 9-15896 **University of Missouri - Columbia** **3393**
Earth resources synthetic aperture radar applications development working group
Period *Obligations*
09/17/79-03/31/82 **FY82:** **TOTAL: \$161,799**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rouse, J. W. JSC/Harnage, M. J. 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)**

NAS13-174 University of Missouri - Columbia 3394
Incorporation of LANDSAT technology into farmers' information system being developed by NASA and the Missouri farmers' association

<i>Period</i>	<i>Obligations</i>	
03/18/81-12/31/82	FY82: \$20,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pirog, R.	NSTL/Joyce, A. T.	32-Geological Sci

NCC 2-199 University of Missouri - Columbia 3395
Aerodynamic holography in transonic flow

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$25,867	TOTAL: \$25,867
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miles, J. B.	ARC/Brown, J. L.	41-Aero Engr

NAG 1-26 University of Missouri - Rolla 3396
Aerodynamic-structural study of canard wing, dual wing, and conventional wing system for general aviation applications

<i>Period</i>	<i>Obligations</i>	
01/01/80-08/31/82	FY82:	TOTAL: \$144,813
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Selberg, B. P. Cronin, D. L.	LARC/Holmes, B. J.	41-Aero Engr

NAG 1-125 University of Missouri - Rolla 3397
Assessment of the effect of nonequilibrium ionization on radiative transfer during outer planet atmosphere entry

<i>Period</i>	<i>Obligations</i>	
01/01/81-08/31/81	FY82:	TOTAL: \$14,668
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nelson, H. F.	LARC/Moss, J. N.	41-Aero Engr

NAG 1-198 University of Missouri - Rolla 3398
Near and far field radiation for ducts using a finite and infinite element approach

<i>Period</i>	<i>Obligations</i>	
08/15/81-08/14/83	FY82: \$32,058	TOTAL: \$52,824
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eversman, W. Astley, R. J.	LARC/Watson, W. R. LARC/Lester, H. C.	41-Aero Engr

NAG 1-240 University of Missouri - Rolla 3399
Noise transmission through composite panels

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$39,971	TOTAL: \$39,971
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Koval, L. R.	LARC/Powell, C. A. LARC/Mixson, J. S.	41-Aero Engr

NAG 3-178 University of Missouri - Rolla 3400
Study of sound transmission in high speed flows

<i>Period</i>	<i>Obligations</i>	
08/31/81-08/30/82	FY82:	TOTAL: \$36,829
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eversman, W.	LERC/Baumeister, K. J. LERC/Rice, E. J.	41-Aero Engr

NAS 8-32976 University of Missouri - Rolla 3401
Monodisperse cloud experiment

<i>Period</i>	<i>Obligations</i>	
04/03/78-09/30/82	FY82:	TOTAL: \$195,661
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hagen, D. E.	MSFC/Smith, R. E.	31-Atmos Sci

NAS 8-34603 University of Missouri - Rolla 3402
An experimental study of ice nucleation and crystal growth in a cloud simulation facility

<i>Period</i>	<i>Obligations</i>	
12/18/81-12/17/83	FY82: \$155,000	TOTAL: \$155,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hagen, D. E.	MSFC/Fogle, V. MSFC/Williams, J. R.	13-Physics

NAS 8-34758 University of Missouri - Rolla 3403
Containerless processing of glass forming melts in space

<i>Period</i>	<i>Obligations</i>	
03/02/82-03/01/83	FY82: \$80,623	TOTAL: \$80,623
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Day, D. E.	MSFC/Fallon, R. A. MSFC/Williams, J. R.	13-Physics

NAS13-150 University of Missouri - Rolla 3404
Conduct short courses in remote sensing, as an aid in mine engineering, reclamation and quality control

<i>Period</i>	<i>Obligations</i>	
05/15/80-05/15/82	FY82:	TOTAL: \$14,930
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elifrits, C. D.	NSTL/Atwell, B. H.	32-Geological Sci

NCA 2-450001 University of Missouri - Rolla 3405
The effect of turbulent boundary layer on transonic flows

<i>Period</i>	<i>Obligations</i>	
12/01/79-03/31/82	FY82:	TOTAL: \$42,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, S. C.	ARC/Holst, T. L. ARC/Vandalsem, W. R.	41-Aero Engr

NCA 2-450201 University of Missouri - Rolla 3406
Viscous effect on wings during steady transonic flight

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, S. C.	ARC/Holst, T. L.	41-Aero Engr

NSG 1369 University of Missouri - Rolla 3407
Transport properties in the atmosphere of Jupiter

<i>Period</i>	<i>Obligations</i>	
01/01/77-12/31/82	FY82:	TOTAL: \$54,404
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Biolsi, L.	LARC/Jones, J. J.	12-Chemistry

**NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)**

NSG 1452 University of Missouri - Rolla 3408
Study of gas-solid airflow over a flat plate

<i>Period</i>	<i>Obligations</i>	
10/01/77-11/30/81	FY82: TOTAL: \$197,052	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Patterson, G. K.	LARC/Hefner, J. N.	41-Aero Engr
Oetting, R. B.	LARC/Bushnell, D. M.	
Anderson, R. A.		

NAG 9-24 Washington University 3415
Pattern, age and origin of structural features within the Ozark plateau and the relationship to ore deposits

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$69,758 TOTAL: \$69,758	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arvidson, R. E.	JSC/Duke, M. B.	32-Geological Sci

NAG 5-243 University of Missouri - Saint Louis 3409
Ultraviolet observations of low excitation herbig-haro objects

<i>Period</i>	<i>Obligations</i>	
07/01/82-10/31/82	FY82: \$3,000 TOTAL: \$3,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schwartz, R. D.	GSFC/Kondo, Y.	11-Astronomy

NAGW 122 Washington University 3416
Proposal for the innovative research program

<i>Period</i>	<i>Obligations</i>	
11/15/80-11/14/82	FY82: \$20,000 TOTAL: \$270,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Walker, R. M.	HQ-EL/Boyce, J. M.	11-Astronomy
Arvidson, R. E.	HQ-EL/Holt, H. E.	

NSG 7563 University of Missouri - Saint Louis 3410
Condensate phenomena in the polar regions of Mars

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/28/82	FY82: \$19,622 TOTAL: \$75,600	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
James, P. B.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NAGW 179 Washington University 3417
Analytical, experimental, and modeling studies of lunar and terrestrial igneous rocks

<i>Period</i>	<i>Obligations</i>	
04/01/81-01/28/83	FY82: \$95,000 TOTAL: \$205,042	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haskin, L. A.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAG 1-38 Washington University 3411
Measurement of the diurnal variation of the radicals in the upper atmosphere

<i>Period</i>	<i>Obligations</i>	
03/06/80-04/30/82	FY82: TOTAL: \$49,955	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, W. H.	LARC/Boughner, R. E.	31-Atmos Sci
	LARC/Callis, L. B., Jr.	

NAGW 301 Washington University 3418
Ground base models of hypokinesia and skeletal physiology

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$50,000 TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simmons, D. J.	HQ-EB/Halstead, T. W.	51-Biological Sci

NAG 1-250 Washington University 3412
Methodology of design of helicopter rotor blades for optimum dynamic characteristics

<i>Period</i>	<i>Obligations</i>	
01/18/82-01/17/83	FY82: \$55,000 TOTAL: \$55,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Peters, D. A.	LARC/Young, W. H., Jr.	41-Aero Engr

NAS 2-10636 Washington University 3419
The effect of spaceflight on the growth, mineralization and remodeling of the rhesus monkey skeleton

<i>Period</i>	<i>Obligations</i>	
05/15/80-07/31/83	FY82: \$971 TOTAL: \$33,616	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simmons, D. J.	ARC/Souza, K. A.	59-Life Sci, NEC
	ARC/Holton, E. A.	

NAG 1-295 Washington University 3413
Compression failure mechanisms of composite structures

<i>Period</i>	<i>Obligations</i>	
08/01/82-07/31/83	FY82: \$45,000 TOTAL: \$45,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hahn, H. T.	LARC/Williams, J. G.	41-Aero Engr
	LARC/Starnes, J. H., Jr.	

NAS 5-26533 Washington University 3420
Structure of the St. Francois Mountains and surrounding lead belt

<i>Period</i>	<i>Obligations</i>	
05/12/81-09/11/82	FY82: TOTAL: \$25,623	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Arvidson, R. E.	GSFC/Stuart, L.	32-Geological Sci
Davies, G. F.		

NAG 9-7 Washington University 3414
Lunar and planetary surface dynamics and early history

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/83	FY82: \$110,000 TOTAL: \$311,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hohenberg, C. M.	JSC/Dietrich, J.	31-Atmos Sci

NAS 8-27976 Washington University 3421
Design, development and operation of a heavy nuclei experiment under the HEAO program

<i>Period</i>	<i>Obligations</i>	
06/16/72-09/30/83	FY82: \$258,392 TOTAL: \$1,165,271	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Israel, M. H.	MSFC/Stone, J. F.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)**

NAS 8-34341	Washington University	3422		
Fire fighting module evaluation				
	<i>Period</i>	<i>Obligations</i>		
	07/15/81-06/14/83	FY82: TOTAL: \$18,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Haefner, L. E.	MSFC/Burns, R. MSFC/Kent, M. I.	46-Mech Engr	
NASW 3331	Washington University	3423		
Stimulating operational private sector use of Earth observation satellite information				
	<i>Period</i>	<i>Obligations</i>		
	11/01/79-01/15/81	FY82: TOTAL: \$98,607		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Eastwood, L. F.	HQ-ET/Weinstein, R. H. HQ-ET/Tuyahov, A. J.	39-Env Sci, NEC	
NCA 2-841001	Washington University	3424		
Investigations of Titan's atmosphere				
	<i>Period</i>	<i>Obligations</i>		
	07/01/80-06/30/82	FY82: TOTAL: \$7,104		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Smith, W. H.	ARC/Cuzzi, J. N. ARC/Giver, L. P.	31-Atmos Sci	
NGL 26-008-065	Washington University	3425		
Lunar sample analysis				
	<i>Period</i>	<i>Obligations</i>		
	02/01/71-01/31/83	FY82: \$405,000 TOTAL: \$3,577,642		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Walker, R. M.	JSC/Dietrich, J. W.	13-Physics	
NGR 26-008-001	Washington University	3426		
Determination of characteristics of high altitude primary cosmic radiation at low latitudes				
	<i>Period</i>	<i>Obligations</i>		
	09/01/61-10/31/82	FY82: \$190,000 TOTAL: \$2,195,540		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Israel, M. H.	HQ-EZ/Opp, A. G. HQ-EZ/Kaluzienski, L. J.	11-Astronomy	
NSG 1601	Washington University	3427		
Quantitative non-destructive evaluation of damage in graphite-epoxy composites using transmitted and reflected ultrasound				
	<i>Period</i>	<i>Obligations</i>		
	03/15/79-03/14/83	FY82: \$99,995 TOTAL: \$268,821		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Miller, J. G.	LARC/Heyman, J. S. LARC/Cantrell, J. H., Jr.	13-Physics	
NSG 7016	Washington University	3428		
Lunar data analysis and synthesis program on lunar surface dynamics				
	<i>Period</i>	<i>Obligations</i>		
	12/01/73-12/31/80	FY82: TOTAL: \$494,801		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Hohenberg, C. M.	HQ-EL/Quaide, W. L.	32-Geological Sci	
NSG 7087	Washington University	3429		
Computerized analysis of Martian crater and Aeolian feature data				
	<i>Period</i>	<i>Obligations</i>		
	08/01/74-12/31/82	FY82: \$116,231 TOTAL: \$565,411		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Arvudson, R. E.	HQ-EL/Boyce, J. M. HQ-EL/Holt, H. E.	32-Geological Sci	
NSG 7334	Washington University	3430		
Planetary observations using a new Fabry-Perot interferometric method				
	<i>Period</i>	<i>Obligations</i>		
	04/01/77-03/31/82	FY82: \$100,000 TOTAL: \$528,221		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Smith, W. H.	HQ-EL/Brunk, W. E. HQ-EL/Murphy, R. E.	11-Astronomy	
NCA 2-841001	Washington University	3424		
Investigations of Titan's atmosphere				
	<i>Period</i>	<i>Obligations</i>		
	07/01/80-06/30/82	FY82: TOTAL: \$7,104		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Smith, W. H.	ARC/Cuzzi, J. N. ARC/Giver, L. P.	31-Atmos Sci	
NSG 7372	Washington University	3431		
Interferometric spectral observations of the interstellar medium in the near ultraviolet				
	<i>Period</i>	<i>Obligations</i>		
	07/01/77-03/31/83	FY82: \$25,000 TOTAL: \$147,110		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Smith, W. H.	HQ-EZ/Weiler, E. J. HQ-EZ/Bogges, N. W.	11-Astronomy	
NSG 7545	Washington University	3432		
Multispectral, topographic, and photogeologic studies of Aeolian phenomena on Mars				
	<i>Period</i>	<i>Obligations</i>		
	03/01/79-01/31/83	FY82: \$36,067 TOTAL: \$229,720		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Arvudson, R. E.	HQ-EL/Boyce, J. M. HQ-EL/Holt, H. E.	32-Geological Sci	
NSG 7578	Washington University	3433		
Evolution of Mars				
	<i>Period</i>	<i>Obligations</i>		
	03/01/79-09/30/82	FY82: \$1,310 TOTAL: \$222,504		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Goettal, K. A.	HQ-EL/Quaide, W. L. HQ-EL/Boyce, J. M.	32-Geological Sci	
NSG 9055	Washington University	3434		
Chemical studies of materials and processes in the lunar regolith and of lunar and terrestrial igneous differentiation				
	<i>Period</i>	<i>Obligations</i>		
	02/01/77-02/01/83	FY82: \$75,000 TOTAL: \$653,598		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	
	Haskin, L. A.	JSC/Dietrich, J. W.	32-Geological Sci	

**NASA'S UNIVERSITY PROGRAM
MONTANA**

MONTANA

NAG 2-37 Montana State University 3435
A study of supersonic three-dimensional turbulent boundary layer

<i>Period</i>	<i>Obligations</i>	
05/01/80-04/30/83	FY82: \$52,000	TOTAL: \$140,077
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Demetriades, A.	ARC/Horstman, C. C.	41-Aero Engr
Reithman, T. C.		

NAS 9-16007 Montana State University 3436
Study to improve parameters for a winter wheat model

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/82	FY82: \$55,000	TOTAL: \$232,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Caprio, J. M.	JSC/Whitehead, V. S.	39-Env Sci, NEC

NEBRASKA

NAS 9-16162 Kearney State College 3437
In-cloud predictions for Space Shuttle launches

<i>Period</i>	<i>Obligations</i>	
08/25/80-12/31/81	FY82:	TOTAL: \$31,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glasser, M. E.	JSC/Patterson, A. E.	31-Atmos Sci

NAG 3-95 University of Nebraska - Lincoln 3438
Intercalated carbon fiber conductor for aerospace use

<i>Period</i>	<i>Obligations</i>	
09/01/80-01/28/83	FY82:	TOTAL: \$64,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woollam, J. A.	LERC/Riley, T. J.	45-Elec Engr
	LERC/Myers, I. T.	

NAG 3-120 University of Nebraska - Lincoln 3439
Diffusion length measurements in gallium arsenide and other III IV semiconductor compounds

<i>Period</i>	<i>Obligations</i>	
10/30/80-04/29/82	FY82:	TOTAL: \$16,956
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woollam, J. A.	LERC/Weinberg, I.	13-Physics

NAG 3-154 University of Nebraska - Lincoln 3440
Surface passivation of III IV compound semiconductors for microwave applications

<i>Period</i>	<i>Obligations</i>	
03/10/81-06/07/83	FY82: \$85,824	TOTAL: \$137,744
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woollam, J. A.	LERC/Liu, D. C.	19-Phys Sci, NEC
Alterovitz, S. A.		

NAG 3-237 University of Nebraska - Lincoln 3441
New semi-conductor materials for novel aerospace applications

<i>Period</i>	<i>Obligations</i>	
11/30/81-11/29/82	FY82: \$39,426	TOTAL: \$39,426
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Woollam, J. A.	LERC/Sundberg, G. R.	45-Elec Engr

NAG 5-277 University of Nebraska - Lincoln 3442
Bidirectional reflectance modeling of non homogenous plant canopies

<i>Period</i>	<i>Obligations</i>	
09/15/82-09/14/83	FY82: \$34,947	TOTAL: \$34,947
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Norman, J. M.	GSFC/Kimes, D.	55-Agriculture Sci

NAS 9-16636 University of Nebraska - Lincoln 3443
Field measurements and modeling of corn and soybean moisture stress

<i>Period</i>	<i>Obligations</i>	
06/14/82-01/31/83	FY82: \$60,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blad, B. L.	JSC/Browne, I. D.	39-Env Sci, NEC
	JSC/Pitts, D. E.	

NGL 28-004-020 University of Nebraska - Lincoln 3444
Applications of remote sensing in resource management in Nebraska

<i>Period</i>	<i>Obligations</i>	
04/20/72-05/31/85	FY82:	TOTAL: \$1,025,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carlson, M. P.	HQ-EL/Tuyahov, A. J.	39-Env Sci, NEC

NGR 28-004-021 University of Nebraska - Lincoln 3445
Interaction of radiation with planetary gases

<i>Period</i>	<i>Obligations</i>	
02/23/73-06/30/83	FY82:	TOTAL: \$394,731
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Samson, J. A.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NGT 28-004-800 University of Nebraska - Lincoln 3446
The effect of moisture stress on multispectral radiation from agricultural crops

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$12,750	TOTAL: \$35,450
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blad, B. L.	HQ-LB/Carter, C. H.	39-Env Sci, NEC

NSG 5391 University of Nebraska - Lincoln 3447
Ultraviolet spectrophotometry of Cepheids

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/82	FY82:	TOTAL: \$27,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schmidt, E. G.	GSFC/Bogges, A.	11-Astronomy
Parsons, S. B.		

NAS13-168 University of Nebraska-Omaha 3448
Large scale identification of irrigated lands application systems verification and transfer (ASVT) project

<i>Period</i>	<i>Obligations</i>	
12/01/80-08/31/81	FY82:	TOTAL: \$16,983
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rundquist, D. C.	NSTL/Patterson, F. A.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
NEVADA**

NEVADA

NAG 2-114 Univ. of Nevada - Desert Res. Inst. 3449
Stratospheric cloud condensation nuclei sampling program

<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/82	FY82:	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rogers, C. F.	ARC/Margozzi, A. P.	31-Atmos Sci

NAS 8-32975 Univ. of Nevada - Desert Res. Inst. 3450
Atmospheric cloud physics laboratory cloud forming experiment for the first (ACPL) mission

<i>Period</i>	<i>Obligations</i>	
03/01/78-05/31/82	FY82:	TOTAL: \$546,496
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Smith, R. E. MSFC/Torkar, D. E.	31-Atmos Sci

NAS 8-32977 Univ. of Nevada - Desert Res. Inst. 3451
Atmospheric cloud physics laboratory ice crystal growth experiment

<i>Period</i>	<i>Obligations</i>	
03/01/78-11/30/81	FY82: \$14,965	TOTAL: \$198,240
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hallot, J.	MSFC/Smith, R. E.	31-Atmos Sci

NAS 8-33273 Univ. of Nevada - Desert Res. Inst. 3452
Complex aerosol nucleation experiment ACPL-2

<i>Period</i>	<i>Obligations</i>	
02/16/79-05/31/82	FY82:	TOTAL: \$159,790
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kocmond, W. C.	MSFC/Fallon, R. A. MSFC/Smith, R. E.	31-Atmos Sci

NAS 8-33820 Univ. of Nevada - Desert Res. Inst. 3453
Cloud condensation nuclei measurement workshop

<i>Period</i>	<i>Obligations</i>	
05/23/80-09/10/81	FY82:	TOTAL: \$99,956
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kocmond, W.	MSFC/Smith, R. E. MSFC/Anderson, J. B.	31-Atmos Sci

NAS 8-34685 Univ. of Nevada - Desert Res. Inst. 3454
An inertial velocity reference for the NASA airborne Doppler lidar

<i>Period</i>	<i>Obligations</i>	
06/25/82-09/24/83	FY82: \$217,703	TOTAL: \$217,703
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Telford, J. W.	MSFC/Bilbro, J. W. MSFC/Mastin, W. C.	31-Atmos Sci

NAS 8-34731 Univ. of Nevada - Desert Res. Inst. 3455
Evaluation of data obtained from atmospheric laser Doppler velocimeter

<i>Period</i>	<i>Obligations</i>	
04/26/82-04/25/83	FY82: \$69,800	TOTAL: \$69,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Telford, J. W.	MSFC/Fitzjarrald, D. E. MSFC/Kaufman, J. W.	31-Atmos Sci

NAG 1-84 University of Nevada - Las Vegas 3456
Prediction of steady and unsteady airloads in porous wall wind tunnels

<i>Period</i>	<i>Obligations</i>	
11/01/80-10/31/82	FY82:	TOTAL: \$32,553
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fromme, J. A. Goldberg, M. A.	LARC/Bland, S. R.	41-Aero Engr

NAG 2-196 University of Nevada - Reno 3457
Visual guidance of locomotion

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$43,718	TOTAL: \$43,718
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harrington, T. L.	ARC/Hartzell, E. J.	69-Psych, NEC

NAS 8-34605 University of Nevada - Reno 3458
The influence of low convective velocities on the growth of crystals

<i>Period</i>	<i>Obligations</i>	
02/02/82-02/01/84	FY82: \$192,000	TOTAL: \$192,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hallett, T.	MSFC/Fogle, V. MSFC/Williams, J. R.	31-Atmos Sci

NCC 2-134 University of Nevada - Reno 3459
Proposal to implement, flight test and analyze the non-precision and precision approach capability of the weather radar approach system (WRAPS)

<i>Period</i>	<i>Obligations</i>	
04/15/81-10/31/82	FY82:	TOTAL: \$89,731
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chisholm, J. P.	ARC/Anderson, D. J.	41-Aero Engr

NSG 2291 University of Nevada - Reno 3460
Computations and turbulent flow modeling in support of helicopter rotor technology

<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/82	FY82: \$35,970	TOTAL: \$178,410
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rose, W. C. Kleppe, J. A.	ARC/Buell, D. A. ARC/Murphy, J. D.	41-Aero Engr

NEW HAMPSHIRE

NAG 3-13 Dartmouth College 3461
Ductility of polycrystalline nickel aluminum

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/29/83	FY82: \$40,000	TOTAL: \$119,439
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schulson, E. M.	LERC/Whittenberger, J. D.	47-Materials Engr

**NASA'S UNIVERSITY PROGRAM
NEW HAMPSHIRE (Continued)**

NAG 5-159 Dartmouth College 3462
Geological and geobotanical mapping of the Caraiba region in Brazil
Period *Obligations*
04/01/81-12/31/82 FY82: \$10,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Birmie, R. W. GSFC/Kouns, C. W. 32-Geological Sci
GSFC/Schnetzler, C. C.

NAG 6-12 University of New Hampshire - Durham 3470
Investigation of auroral electrodynamics and argon (plasma) release for controlled studies
Period *Obligations*
04/23/81-04/22/83 FY82: TOTAL: \$99,118
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arnoldy, R. L. GSFC/Early, L. J. 19-Phys Sci, NEC
Kaufmann, R. L. GSFC/Pless, R. H.

NAG 8-305 Dartmouth College 3463
Optical observations of High Energy Astronomical Observatory-B objects
Period *Obligations*
01/20/80-09/30/82 FY82: TOTAL: \$9,819
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mook, D. E. MSFC/Stone, J. F. 11-Astronomy

NAGW 52 University of New Hampshire - Durham 3471
Analysis of University of New Hampshire ATS-6 data multiple spacecraft studies
Period *Obligations*
02/01/80-01/31/83 FY82: \$38,000 TOTAL: \$102,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, J. T. HQ-EE/Lynch, J. T. 32-Geological Sci
HQ-EE/Schmerling, E. R.

NCC 5-22 Dartmouth College 3464
An investigation of vegetation and other Earth resources parameters using LANDSAT and other remote sensing data
Period *Obligations*
02/01/80-02/28/83 FY82: \$5,000 TOTAL: \$215,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Birmie, R. W. GSFC/Ungar, S. G. 32-Geological Sci

NAGW 76 University of New Hampshire - Durham 3472
Theoretical studies group on the physics of the solar atmosphere and the solar wind
Period *Obligations*
06/01/80-10/31/83 FY82: \$297,000 TOTAL: \$668,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fisk, L. A. HQ-EE/Butler, D. M. 13-Physics

NSG 2397 Dartmouth College 3465
Optical constants of transition metals
Period *Obligations*
07/01/79-06/30/83 FY82: TOTAL: \$124,402
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Christy, R. W. ARC/Cooper, D. M. 13-Physics

NAGW 271 University of New Hampshire - Durham 3473
Research on studies of shelf circulation
Period *Obligations*
11/01/81-10/31/82 FY82: \$199,929 TOTAL: \$199,929
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pettigrew, N. R. HQ-EB/McGoldrick, L. R.
Irish, J. D. HQ-EB/Wilson, W. S. 33-Oceanography

NSG 3253 Dartmouth College 3466
Thermomechanical effects in high speed seal rubs
Period *Obligations*
02/26/79-09/30/83 FY82: \$31,364 TOTAL: \$122,529
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kennedy, F. E., Jr. LERC/Kascek, A. 47-Materials Engr
LERC/Kiraly, L. J.

NAS 5-23761 University of New Hampshire - Durham 3474
Hardware phase of the solar gamma ray experiment for the Solar Maximum Mission
Period *Obligations*
10/01/76-04/14/83 FY82: \$354,447 TOTAL: \$4,236,173
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chupp, E. L. GSFC/Underwood, C. 31-Atmos Sci
Forrest, D. J. GSFC/Corrigan, J. P.

NSG 5348 Dartmouth College 3467
Magnetopause studies using satellite data
Period *Obligations*
05/01/79-03/31/83 FY82: \$25,000 TOTAL: \$87,499
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sonnerup, B. U. GSFC/Wales, R. 32-Geological Sci

NAS 5-24354 University of New Hampshire - Durham 3475
Analysis and interpretation of Pioneer 10 and 11 data
Period *Obligations*
10/16/77-02/15/83 FY82: \$43,950 TOTAL: \$138,687
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Webber, W. R. GSFC/Trainor, J. H. 13-Physics

NAG 5-130 University of New Hampshire - Durham 3468
Studies of solar wind minor ions
Period *Obligations*
01/01/81-12/31/82 FY82: \$38,455 TOTAL: \$73,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hollweg, J. V. GSFC/Ogilvie, K. W. 13-Physics
Isenberg, P. A.

NAS 5-25420 University of New Hampshire - Durham 3476
Compton telescope experiment for the gamma-ray observatory definition phase
Period *Obligations*
11/21/78-06/30/81 FY82: TOTAL: \$696,489
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lockwood, J. A. GSFC/Davis, M. A. 11-Astronomy

NAG 5-228 University of New Hampshire - Durham 3469
Investigation of upstream magnets-hydro-dynamic waves
Period *Obligations*
04/01/82-03/31/83 FY82: \$21,000 TOTAL: \$21,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, C. GSFC/Wales, R. O. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
NEW HAMPSHIRE (Continued)**

NAS 5-26645 University of New Hampshire - Durham 3477
Definition phase of the D-1 detector subsystem for the imaging Compton telescope

<i>Period</i>	<i>Obligations</i>	
09/01/81-11/30/82	FY82: \$1,062,727	TOTAL: \$1,631,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lockwood, J. A.	GSFC/Davis, M. A.	11-Astronomy

NCC 2-27 University of New Hampshire - Durham 3478
Controlled ecology life support system workshops: The biological problems and experimental program

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/31/82	FY82: \$228,904	TOTAL: \$460,419
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moore, B.	ARC/MacElroy, R. D.	51-Biological Sci

NCC 2-209 University of New Hampshire - Durham 3479
Control of plant growth within a CELSS

<i>Period</i>	<i>Obligations</i>	
09/01/82-03/31/83	FY82: \$50,200	TOTAL: \$50,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moore, B., III	ARC/MacElroy, R. D.	51-Biological Sci
Schwartzkopf, S.	ARC/Wydeven, T.	

NCC 2-210 University of New Hampshire - Durham 3480
Control of gas exchange in gas-closed animal/plant systems: An experimental and modelling study of the feasibility of using organisms as control elements in a CELSS

<i>Period</i>	<i>Obligations</i>	
09/01/82-12/31/82	FY82: \$29,800	TOTAL: \$29,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Averner, M. M.	ARC/MacElroy, R. D.	51-Biological Sci
Moore, B., III	ARC/Wydeven, T.	

NGL 30-002-021 University of New Hampshire - Durham 3481
Investigation and development of techniques for solar neutron and gamma ray detection

<i>Period</i>	<i>Obligations</i>	
02/28/66-01/31/83	FY82: \$130,000	TOTAL: \$1,717,365
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chupp, E. L.	HQ-EZ/Kaluziński, L. J.	11-Astronomy
	HQ-EZ/Opp, A. G.	

NGR 30-002-052 University of New Hampshire - Durham 3482
Research program in area of cosmic ray and X-ray astronomy

<i>Period</i>	<i>Obligations</i>	
02/12/70-09/30/82	FY82: \$123,782	TOTAL: \$1,443,967
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Webber, W. R.	HQ-EZ/Opp, A. G.	11-Astronomy
	HQ-EZ/Kaluziński, L. J.	

NSG 5316 University of New Hampshire - Durham 3483
Collaborative research of solar phenomena-solar maximum mission

<i>Period</i>	<i>Obligations</i>	
07/01/79-03/31/82	FY82:	TOTAL: \$52,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fisk, L. A.	GSFC/Wende, C.	31-Atmos Sci

NSG 7411 University of New Hampshire - Durham 3484
Theoretical studies in solar particle physics

<i>Period</i>	<i>Obligations</i>	
10/01/77-11/30/82	FY82: \$41,000	TOTAL: \$177,065
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fisk, L. A.	HQ-EZ/Chipman, E.	13-Physics

NSG 7481 University of New Hampshire - Durham 3485
Application of a double Compton telescope to measurements of the 1-15 MeV extraterrestrial gamma rays

<i>Period</i>	<i>Obligations</i>	
03/01/78-02/28/83	FY82: \$50,000	TOTAL: \$203,819
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lockwood, J. A.	HQ-EZ/Kaluziński, L. J.	11-Astronomy
Webber, W. R.	HQ-EZ/Opp, A. G.	

NEW JERSEY

NCC 2-40 College of Medicine & Dentistry - NJ 3486
To determine the rhythmicity of circulating catecholamines in normal and chronically bedrested subjects

<i>Period</i>	<i>Obligations</i>	
12/01/79-09/30/81	FY82:	TOTAL: \$20,750
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Natelson, B. H.	ARC/Sharp, J. C.	56-Medical Sciences

NAG 1-108 Princeton University 3487
Generation and visualization on techniques for large scale vortex structures

<i>Period</i>	<i>Obligations</i>	
11/01/80-12/31/81	FY82:	TOTAL: \$19,872
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Curtiss, H. C.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Bushnell, D. M.	

NAG 1-152 Princeton University 3488
Development of the laser Doppler velocimeter for turbulence measurements in nitrogen

<i>Period</i>	<i>Obligations</i>	
02/04/81-02/03/82	FY82:	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miles, R. B.	LARC/Hoppe, J. C.	19-Phys Sci, NEC
Zimmerman, M.	LARC/Hunter, W. W.	

NAG 1-186 Princeton University 3489
Accelerated solution methods for inviscid transonic flows

<i>Period</i>	<i>Obligations</i>	
12/03/81-12/02/82	FY82: \$80,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jameson, A.	LARC/South, J. C.	41-Aero Engr
Baker, T. J.		

NAG 2-96 Princeton University 3490
Numerical calculation of transonic flows past complex aerodynamic configurations

<i>Period</i>	<i>Obligations</i>	
02/01/81-03/31/83	FY82: \$50,000	TOTAL: \$99,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jameson, A.	ARC/Hicks, R. M.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NAG 2-98 **Princeton University** **3491**
An analytical study of the stability and control vertical take-off and landing airships
Period *Obligations*
02/01/81-09/30/82 **FY82:** **TOTAL: \$41,964**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Curtiss, H. C. ARC/Talbot, P. D. 41-Aero Engr

NAG 3-310 **Princeton University** **3498**
The oxidation degradation of aromatic compounds
Period *Obligations*
09/01/82-08/29/85 **FY82: \$144,045** **TOTAL: \$144,045**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassman, I. LERC/Brabbs, T. A. 12-Chemistry
Brezinsky, K. LERC/Lezberg, E. A.

NAG 2-109 **Princeton University** **3492**
Three-dimensional shock wave/turbulent boundary layer interaction experiments
Period *Obligations*
04/01/81-03/31/83 **FY82: \$49,986** **TOTAL: \$99,959**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Settles, G. S. ARC/Horstman, C. C. 41-Aero Engr

NAG 5-48 **Princeton University** **3499**
Absorption measures of galactic halo gas
Period *Obligations*
05/01/80-01/31/83 **FY82: \$22,600** **TOTAL: \$47,668**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
York, D. G. GSFC/Kondo, Y. 11-Astronomy
Wu, C. C.
Morton, D. G.

NAG 3-8 **Princeton University** **3493**
Coupling of transport and chemical processes in catalytic combustion
Period *Obligations*
12/01/79-12/30/82 **FY82: \$59,975** **TOTAL: \$164,508**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bracco, F. V. LERC/Szaniuszlo, A. J. 41-Aero Engr
Royce, B. S.

NAG 5-241 **Princeton University** **3500**
Evolution of selected detector array for space applications
Period *Obligations*
06/01/82-02/28/83 **FY82: \$49,182** **TOTAL: \$49,182**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
York, D. G. GSFC/Ritter, M. 42-Astro Engr
Lowrance, J. GSFC/Barnes, W. L.

NAG 3-110 **Princeton University** **3494**
Development and validation of an input/output model of general aviation aircraft fuel efficiency
Period *Obligations*
10/01/80-12/31/82 **FY82:** **TOTAL: \$92,870**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sweet, L. M. LERC/Rice, W. 41-Aero Engr
Curtis, H. C. LERC/Seidel, E. C.

NAG 8-306 **Princeton University** **3501**
Radiatively cooling clusters
Period *Obligations*
03/01/80-06/18/81 **FY82:** **TOTAL: \$3,499**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cowie, L. L. MSFC/Jones, J. B. 11-Astronomy
Fabian, A. C.
Nulsen, P.

NAG 3-221 **Princeton University** **3495**
Dynamics of nonlinear engine structural systems including damping
Period *Obligations*
10/05/81-10/04/82 **FY82:** **TOTAL: \$49,358**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dowell, E. LERC/McAleese, J. D. 46-Mech Engr

NAG 8-363 **Princeton University** **3502**
Compact V-V groups of galaxies
Period *Obligations*
07/01/80-06/30/83 **FY82:** **TOTAL: \$1,400**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bahcall, N. A. MSFC/Swearingen, J. C. 11-Astronomy

NAG 3-259 **Princeton University** **3496**
Behavior of fluid globules in external fields
Period *Obligations*
02/20/82-02/19/83 **FY82: \$30,000** **TOTAL: \$30,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Saville, D. A. LERC/Chai, A. T. 13-Physics

NAG 8-420 **Princeton University** **3503**
Galaxy halos
Period *Obligations*
07/28/81-07/31/83 **FY82:** **TOTAL: \$5,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Behcall, N. A. MSFC/Stone, J. F. 11-Astronomy

NAG 3-308 **Princeton University** **3497**
Nonlinear flutter of fan and compressor blades
Period *Obligations*
10/01/82-09/30/83 **FY82: \$54,596** **TOTAL: \$54,596**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bendiksen, O. O. LERC/Brown, G. V. 41-Aero Engr

NAGW 10 **Princeton University** **3504**
Gaseous halos of galaxies
Period *Obligations*
11/01/79-04/30/83 **FY82:** **TOTAL: \$124,338**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
York, D. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Bogges, N. W.

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NAGW 120 Princeton University 3505
Extragalactic astrophysics: Young galaxies and intergalactic medium
Period *Obligations*
11/15/80-11/14/82 FY82: TOTAL: \$201,273
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ostriker, J. P. HQ-EP/Taylor, T. C. 13-Physics
HQ-EP/Heninger, L. C.

NAS 5-25084 Princeton University 3512
Data and operations team leader for the space telescope project
Period *Obligations*
05/23/78-12/31/84 FY82: \$119,000 TOTAL: \$422,840
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Groth, E. J. GSFC/White, R. A. 11-Astronomy

NAGW 240 Princeton University 3506
Study of the structure of turbulent shear flows at supersonic speeds and huge Reynolds numbers
Period *Obligations*
09/01/81-08/31/83 FY82: \$249,972 TOTAL: \$374,937
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bogdonoff, S. HQ-RT/Hicks, G. 41-Aero Engr
Smits, A. HQ-RT/Brown, C. E.

NAS 5-25896 Princeton University 3513
Laser geodynamics experiment study of polar motion, plate rigidity and plate motions
Period *Obligations*
11/02/79-02/01/83 FY82: TOTAL: \$130,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morgan, W. J. GSFC/Stephanides, C. C.
Smith, D. E. 32-Geological Sci

NAGW 372 Princeton University 3507
Magnetic properties of the Martian surface
Period *Obligations*
09/16/82-09/15/83 FY82: \$44,082 TOTAL: \$44,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hargraves, R. B. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Boyce, J.

NAS 5-26288 Princeton University 3514
Design, development and fabrication of interstellar medium absorption profile spectrograph experiment
Period *Obligations*
08/21/80-08/31/83 FY82: \$417,753 TOTAL: \$1,121,281
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jenkins, E. B. GSFC/Cyphers, H. 11-Astronomy

NAS 1-15758 Princeton University 3508
Navion modification and flight test support
Period *Obligations*
03/30/79-03/15/83 FY82: \$59,000 TOTAL: \$341,340
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stengel, R. F. LARC/Bryant, W. H. 41-Aero Engr

NAS 5-27341 Princeton University 3515
Studies of polar motion, Earth rotation and plate motions
Period *Obligations*
08/20/82-08/20/84 FY82: \$76,000 TOTAL: \$76,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morgan, W. J. GSFC/Mead, G. 32-Geological Sci

NAS 1-15764 Princeton University 3509
Investigation of flying qualities criteria for single pilot instrument flight operations
Period *Obligations*
04/05/79-11/30/82 FY82: TOTAL: \$109,139
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stengel, R. F. LARC/Abbott, T. S. 41-Aero Engr
LARC/Garren, J. F., Jr.

NAS 8-32614 Princeton University 3516
Develop and test mathematical models of the three dimensional flow field and particle motions
Period *Obligations*
08/23/77-04/30/83 FY82: \$98,000 TOTAL: \$356,586
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Saville, D. A. MSFC/Snyder, R. S. 59-Life Sci, NEC
MSFC/Moore, W. W., Jr.

NAS 5-23576 Princeton University 3510
Orbital operations, data reduction and analysis, and OAO guest investigator program
Period *Obligations*
09/01/76-03/31/83 FY82: \$546,080 TOTAL: \$4,680,107
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spitzer, L., Jr. GSFC/Bullock, G. D. 11-Astronomy

NCC 1-64 Princeton University 3517
Non-intrusive flow measurements on the Space Shuttle
Period *Obligations*
01/26/82-01/25/83 FY82: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miles, R. B. LARC/Eide, D. G. 41-Aero Engr
Bogdanoff, S. M. LARC/Arrington, J. P.

NAS 5-24486 Princeton University 3511
Microwave and theoretical studies for Cosmic Background Explorer satellite
Period *Obligations*
03/01/78-02/28/83 FY82: \$36,500 TOTAL: \$184,412
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilkinson, D. T. GSFC/Mather, J. C. 11-Astronomy
Peebles, P. J. GSFC/Donohoe, M. J.

NCC 2-94 Princeton University 3518
Aircraft position measurement using laser beacon systems
Period *Obligations*
08/15/80-01/31/83 FY82: \$15,018 TOTAL: \$189,018
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miles, R. B. ARC/Cross, J. L. 41-Aero Engr
Sweet, L. M. ARC/Shockey, G. A.

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NGL 31-001-007 Princeton University 3519
Theoretical and experimental studies of ultraviolet phenomena of astronomical interest and galactic gas dynamics
Period *Obligations*
05/06/83-08/30/83 FY82: TOTAL: \$2,123,560
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spitzer, L., Jr. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Boggess, N. W.

NSG 2366 Princeton University 3526
Turbulence measurements in high speed flows by resonant fluorescence
Period *Obligations*
01/01/79-12/31/81 FY82: TOTAL: \$139,213
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miles, R. B. ARC/McKenzie, R. L. 13-Physics

NGL 31-001-252 Princeton University 3520
Air traffic control technology
Period *Obligations*
11/15/71-01/31/85 FY82: \$50,000 TOTAL: \$768,333
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stengel, R. F. LARC/Howell, W. E. 41-Aero Engr
Sweet, L. M.

NSG 3176 Princeton University 3527
Mass driver development
Period *Obligations*
12/01/77-07/31/81 FY82: TOTAL: \$314,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'neill, G. K. LERC/Banks, B. 42-Astro Engr

NGT 31-001-800 Princeton University 3521
Graduate student researchers program
Period *Obligations*
09/01/81-08/31/83 FY82: \$11,924 TOTAL: \$23,848
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bryan, K. HQ-LB/Carter, C. H. 31-Atmos Sci

NSG 3292 Princeton University 3528
Unsteady transonic aerodynamics of cascades
Period *Obligations*
10/01/79-09/29/81 FY82: TOTAL: \$64,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dowell, E. H. LERC/Braun, W. H. 41-Aero Engr

NGT 31-001-801 Princeton University 3522
Graduate student researchers program
Period *Obligations*
06/01/82-05/31/83 FY82: \$11,500 TOTAL: \$11,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fels, S. B. HQ-LB/Carter, C. H. 32-Geological Sci

NSG 5248 Princeton University 3529
Observational research on the IUE satellite
Period *Obligations*
03/01/78-12/31/82 FY82: \$6,000 TOTAL: \$32,212
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jenkins, E. B. GSFC/Kondo, Y. 11-Astronomy
York, D. G.
Wu, C. C.

NSG 1587 Princeton University 3523
Command and stability augmentation techniques for aircraft with control saturation
Period *Obligations*
01/01/79-10/31/82 FY82: \$28,214 TOTAL: \$70,394
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stengel, R. F. LARC/Schy, A. A. 41-Aero Engr

NSG 5277 Princeton University 3530
Oblique magnetic focusing
Period *Obligations*
07/01/78-01/31/82 FY82: TOTAL: \$197,086
Prin. Invest. *NASA Tech. Officer* *CASE Category*
York, D. G. GSFC/Williams, J. T. 13-Physics
Jenkins, E. B.

NSG 1630 Princeton University 3524
Preliminary investigation of the external flow analysis for density measurements at high altitude
Period *Obligations*
07/01/79-08/31/82 FY82: TOTAL: \$164,765
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blenkowski, G. K. LARC/Blanchard, R. C. 41-Aero Engr
LARC/Jones, J. J.

NSG 7256 Princeton University 3531
Research in extragalactic astrophysics
Period *Obligations*
07/01/76-12/31/83 FY82: TOTAL: \$93,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bahcall, N. A. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Boggess, N. G.

NSG 2194 Princeton University 3525
Transonic flow around wings, bodies and wing-body configurations
Period *Obligations*
11/01/76-10/31/81 FY82: TOTAL: \$242,024
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dowell, E. H. ARC/Chyu, W. J. 41-Aero Engr
Williams, M. H.

NSG 7280 Princeton University 3532
The effect of gravity and weightlessness on the development and regeneration of the giant Coenocyte Caulerpa
Period *Obligations*
10/01/76-10/31/82 FY82: \$55,000 TOTAL: \$295,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jacobs, W. P. HQ-EB/Halstead, T. W. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)**

NSG 7302 Princeton University 3533
New radiometers for balloon 3 K isotropy experiment
Period Obligations
11/15/76-12/31/82 FY82: TOTAL: \$165,811
Prin. Invest. NASA Tech. Officer CASE Category
Wilkinson, D. HQ-EZ/Boggess, N. W. 11-Astronomy
HQ-EZ/Weiler, E. J.

NAGW 142 Rutgers University - New Brunswick 3540
Beryllium isotopes in meteorites
Period Obligations
03/01/81-02/28/83 FY82: \$15,000 TOTAL: \$52,400
Prin. Invest. NASA Tech. Officer CASE Category
Herzog, G. F. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NSG 7568 Princeton University 3534
The geomorphic role of water/ice on Mars
Period Obligations
03/15/79-01/31/83 FY82: \$30,000 TOTAL: \$92,150
Prin. Invest. NASA Tech. Officer CASE Category
Judson, S. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAGW 177 Rutgers University - New Brunswick 3541
Olivine-magna density relations at high pressure and its bearing
on the differentiation of the terrestrial planets
Period Obligations
04/01/81-03/31/83 FY82: \$11,143 TOTAL: \$22,252
Prin. Invest. NASA Tech. Officer CASE Category
Herzberg, C. T. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NSG 7602 Princeton University 3535
The origin of maghemite on Mars
Period Obligations
07/01/79-09/30/81 FY82: TOTAL: \$123,538
Prin. Invest. NASA Tech. Officer CASE Category
Judson, S. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Boyce, J. M.

NSG 7327 Rutgers University - New Brunswick 3542
Research and studies of metal silicate relationships in howardite
breccias
Period Obligations
02/01/77-01/31/83 FY82: \$20,000 TOTAL: \$171,144
Prin. Invest. NASA Tech. Officer CASE Category
Hewins, R. H. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NSG 7618 Princeton University 3536
Photon counting image sensor development for astronomical
applications
Period Obligations
07/01/79-10/14/83 FY82: \$46,803 TOTAL: \$348,627
Prin. Invest. NASA Tech. Officer CASE Category
Jenkins, E. B. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Boggess, N. W.

NSG 7601 Rutgers University - New Brunswick 3543
Convection in spherical shells
Period Obligations
03/15/79-08/31/82 FY82: TOTAL: \$58,572
Prin. Invest. NASA Tech. Officer CASE Category
Zebib, A. HQ-EL/Boyce, J. M. 32-Geological Sci

NAG 5-70 Rutgers University - New Brunswick 3537
Observation of ultraviolet emission from globular clusters
Period Obligations
06/01/80-05/31/83 FY82: \$7,500 TOTAL: \$27,000
Prin. Invest. NASA Tech. Officer CASE Category
Matilsky, T. GSFC/Kondo, Y. 11-Astronomy

NSG 9065 Rutgers University - New Brunswick 3544
Flow behavior of extraterrestrial materials
Period Obligations
02/01/78-02/01/83 FY82: \$20,000 TOTAL: \$90,335
Prin. Invest. NASA Tech. Officer CASE Category
Klein, L. C. JSC/Warner, J. L. 32-Geological Sci

NAG 8-309 Rutgers University - New Brunswick 3538
Investigation of X-ray emission from broad-line radio galaxies
using HEAO-2 and a search for X-ray emission from nearby
quasi stellar objects using High Energy Astronomical Observa-
tory-2
Period Obligations
02/25/80-02/24/82 FY82: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Matilsky, T. MSFC/Jones, J. B. 11-Astronomy

NAG 1-213 Stevens Institute of Technology 3545
Development of disturbances in a growing boundary layer
Period Obligations
09/02/81-12/01/82 FY82: TOTAL: \$78,554
Prin. Invest. NASA Tech. Officer CASE Category
Salwen, H. LARC/Dagenhart, J. R.
Grosch, C. E. 29-Math/Computer, NEC

NAG 8-328 Rutgers University - New Brunswick 3539
Search for decrease in radio pulsar X-ray luminosity during radio
nulls
Period Obligations
03/01/80-02/28/81 FY82: TOTAL: \$8,252
Prin. Invest. NASA Tech. Officer CASE Category
Cheng, A. F. MSFC/Jones, J. B. 11-Astronomy

NAG 3-47 Stevens Institute of Technology 3546
The influence of gyroscopic forces of the dynamic behavior and
flutter of rotating blades
Period Obligations
06/01/80-05/29/83 FY82: \$55,000 TOTAL: \$157,220
Prin. Invest. NASA Tech. Officer CASE Category
Sisto, F. LERC/Kielb, R. E. 46-Mech Engr
Chang, A.

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NAG 8-394 New Mexico Institute of Mining & Tech 3547
A radio survey of coronal X-ray stars

<i>Period</i>	<i>Obligations</i>	
06/25/81-09/24/82	FY82: \$5,715	TOTAL: \$5,715
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gibson, D. M.	MSFC/Stone, J. F.	11-Astronomy
Fisher, P.		

NAS 8-33817 New Mexico Institute of Mining & Tech 3548
Night-time/day-time orbital survey of lightning experiment support

<i>Period</i>	<i>Obligations</i>	
04/01/80-02/29/83	FY82: \$15,000	TOTAL: \$43,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brooks, M.	MSFC/Vaughan, O. H.	31-Atmos Sci
	MSFC/Christian, H. J.	

NCA 2-511101 New Mexico Institute of Mining & Tech 3549
Photon and particle transfer in the compact radiation source in active galactic nuclei

<i>Period</i>	<i>Obligations</i>	
03/01/81-02/28/83	FY82: \$8,000	TOTAL: \$13,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eilek, J. A.	ARC/Caroff, L. J.	11-Astronomy

NCA 5-71 New Mexico Institute of Mining & Tech 3550
Cometary and astrophysical research activities

<i>Period</i>	<i>Obligations</i>	
11/01/76-09/30/82	FY82: \$21,200	TOTAL: \$121,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Donaruma, L. G.	GSFC/Michalitsianos, A.	11-Astronomy

NAGW 110 New Mexico State University - Las Cruces 3551

Continuation of a cosmic ray research program using a superconducting magnet spectrometer

<i>Period</i>	<i>Obligations</i>	
08/01/80-05/31/83	FY82: \$85,109	TOTAL: \$262,596
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Golden, R. L.	HQ-EZ/Opp, A. G.	11-Astronomy
	HQ-EZ/Kaluzienski, L. J.	

NAGW 167 New Mexico State University - Las Cruces 3552

Analysis of Jovian atmospheric motions

<i>Period</i>	<i>Obligations</i>	
04/01/81-05/31/83	FY82: \$27,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beebe, R. F.	HQ-EL/Brinton, H. C.	13-Physics
	HQ-EL/Brunk, W. E.	

NAS 5-24241 New Mexico State University - Las Cruces 3553

Sounding rocket support

<i>Period</i>	<i>Obligations</i>	
08/01/77-08/31/80	FY82: \$124,884	TOTAL: \$3,954,156
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lawrence, H.	GSFC/Pincus, B. R.	49-Engr, NEC
Connell, H.		

NAS 5-26332 New Mexico State University - Las Cruces 3554

Field and analytical engineering support for the sounding rocket program

<i>Period</i>	<i>Obligations</i>	
09/10/80-09/09/83	FY82: \$1,394,254	TOTAL: \$3,120,487
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lawrence, H.	GSFC/Pincus, B. R.	49-Engr, NEC
Connell, H.	GSFC/Cameron, J. W.	

NAS 5-26662 New Mexico State University - Las Cruces 3555

Provide developmental and technological support for the ultraviolet imaging telescope (UIT) shuttle electronics

<i>Period</i>	<i>Obligations</i>	
08/12/81-08/12/83	FY82: \$95,000	TOTAL: \$155,459
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gilcrease, A.	GSFC/Blum, A.	45-Elec Engr

NAS 9-16092 New Mexico State University - Las Cruces 3556

Development of antenna specifications for the advanced synthetic aperture radar (ASAR) project

<i>Period</i>	<i>Obligations</i>	
02/01/80-05/01/81	FY82:	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carver, K.	JSC/Krishen, K.	13-Physics

NAS 9-95509 New Mexico State University - Las Cruces 3557

Design, development, measurement and fabrication of L-band and C-band antennas for use on C-130 aircraft multi-frequency microwave/radiometer

<i>Period</i>	<i>Obligations</i>	
09/26/80-12/31/81	FY82:	TOTAL: \$53,046
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carver, K.	JSC/Fenner, R. G.	39-Env Sci, NEC

NAS 9-95514 New Mexico State University - Las Cruces 3558

Development of a remotely sensed and ground data base in the northern Great Plains for the study of salt affected soils

<i>Period</i>	<i>Obligations</i>	
04/06/81-04/30/82	FY82: \$24,950	TOTAL: \$99,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carver, K. R.	JSC/Farris, G. W.	39-Env Sci, NEC
Chaturvedi, L.		

NAS 9-95519 New Mexico State University - Las Cruces 3559

Synthetic aperture radar antenna trade-off study

<i>Period</i>	<i>Obligations</i>	
06/30/81-10/31/82	FY82: \$8,000	TOTAL: \$27,990
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blevins, B.	JSC/Nitschke, H. A.	39-Env Sci, NEC

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NAS 9-95522 New Mexico State University - Las Cruces 3560

Provide analysis, evaluation and testing for SAR antenna expanded capability to obtain data for Earth observation applications as a part of an SAR payload on the shuttle

<i>Period</i>	<i>Obligations</i>	
09/24/81-09/25/82	FY82:	TOTAL: \$106,691
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Waterman, A.	JSC/Nitschke, H. A.	39-Env Sci, NEC

NAS 9-95539 New Mexico State University - Las Cruces 3561

Identification of sensor parameters for an operational saline seep monitoring system

<i>Period</i>	<i>Obligations</i>	
04/30/82-12/30/82	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carver, K. R.	JSC/Pels, G. F.	39-Env Sci, NEC
Chaturvedi, L.		
Hancock, G.		

NAS 9-95541 New Mexico State University - Las Cruces 3562

Study to determine distributed SAR architecture antenna configurations

<i>Period</i>	<i>Obligations</i>	
07/21/82-07/21/83	FY82: \$59,868	TOTAL: \$59,868
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blevins, B.	JSC/Nitchke, H. A.	39-Env Sci, NEC

NGL 32-003-001 New Mexico State University - Las Cruces 3563

Photographic patrol and study of physical conditions on the Moon and planets

<i>Period</i>	<i>Obligations</i>	
04/15/61-10/31/83	FY82: \$102,229	TOTAL: \$2,121,250
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Beebe, R. F.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Britton, H. C.	

NSG 7622 New Mexico State University - Las Cruces 3564

Speed-dependent collision effects on radar back-scattering from the ionosphere

<i>Period</i>	<i>Obligations</i>	
09/01/79-11/30/82	FY82: \$15,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Theimer, O. H.	HQ-EZ/Lynch, J. T.	19-Phys Sci, NEC

NAG 1-95 University of New Mexico 3565

Study of the photovoltaic effect in thin film barium titanate

<i>Period</i>	<i>Obligations</i>	
08/25/80-11/30/82	FY82: \$58,807	TOTAL: \$103,124
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grannemann, W. W.	LARC/Hayes, P. J.	45-Elec Engr

NAG 3-207 University of New Mexico 3566

Effects of 3-dimensional cross-flow on compressible boundary layer characteristics, controls and separation

<i>Period</i>	<i>Obligations</i>	
08/15/81-12/30/82	FY82: \$25,154	TOTAL: \$45,154
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chou, D. C.	LERC/Hwang, D. P.	41-Aero Engr

NAG 8-386 University of New Mexico 3567

Radio galaxies in poor Zwicky clusters

<i>Period</i>	<i>Obligations</i>	
12/08/80-12/07/82	FY82:	TOTAL: \$20,442
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Burns, J. O.	MSFC/Stone, J. F.	11-Astronomy

NASW 2936 University of New Mexico 3568

Operation of NASA's industrial applications center

<i>Period</i>	<i>Obligations</i>	
07/01/76-09/30/80	FY82:	TOTAL: \$1,048,864
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	HQ-ET/Bivins, R. G.	99-Multi-Discip

NASW 3408 University of New Mexico 3569

Operation of the technology application center at the University of New Mexico

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY82: \$250,000	TOTAL: \$555,863
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morain, S. A.	HQ-ET/Binins, R. G.	99-Multi-Discip
Zink, L. B.		

NGL 32-004-063 University of New Mexico 3570

Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/06/71-01/31/83	FY82: \$97,995	TOTAL: \$1,119,938
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Keil, K.	JSC/Dietrich, J. W.	12-Chemistry

NGL 32-004-064 University of New Mexico 3571

Mineralogy and chemistry of polymict-brecciated stone meteorites

<i>Period</i>	<i>Obligations</i>	
06/14/71-02/28/82	FY82: \$107,988	TOTAL: \$859,586
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Keil, K.	HQ-EL/French, B. M.	32-Geological Sci
Fodor, R. V.	HQ-EL/Quaide, W. L.	
Taylor, G. J.		

NGR 32-004-062 University of New Mexico 3572

Search for evidence of dynamic process

<i>Period</i>	<i>Obligations</i>	
06/22/70-04/30/82	FY82: \$32,002	TOTAL: \$296,075
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elston, W. E.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NGT 32-004-770 University of New Mexico 3573

A precooperative education program

<i>Period</i>	<i>Obligations</i>	
07/25/77-07/24/83	FY82: \$13,930	TOTAL: \$79,922
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Robertson, M.	HQ-LC/Pohly, J. G.	49-Engr, NEC

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NSG 7579 **University of New Mexico** **3574**
Chemical weathering on Mars
Period *Obligations*
03/01/79-06/30/83 FY82: \$51,781 TOTAL: \$209,187
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Keil, K. HQ-EL/Quaide, W. L. 31-Atmos Sci
HQ-EL/Boyce, J. M.

NAG 3-130 **City College of New York** **3581**
Relaxation kinetics in organic glasses
Period *Obligations*
11/10/80-11/08/82 FY82: \$69,995 TOTAL: \$139,949
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alfano, R. R. LERC/Lauver, R. W. 13-Physics

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NAG 1-44 **Brooklyn College** **3575**
Photoelectrolysis of water with surface modified metal oxide electrodes
Period *Obligations*
03/01/80-08/31/82 FY82: TOTAL: \$67,706
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tomkiewicz, M. LARC/Byvik, C. E. 19-Phys Sci, NEC
Aronson, S. LARC/Conway, E. J.

NAG 3-299 **City College of New York** **3582**
A study and software simulation of very high data rate channels
Period *Obligations*
06/25/82-06/24/83 FY82: \$70,157 TOTAL: \$70,157
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schilling, D. LERC/Connolly, D. J. 45-Elec Engr
Ziegler, C.

NCA 2-75201 **Brooklyn College** **3576**
Effects of exposure to abnormal G on mitochondrial aging in drosophila and mice
Period *Obligations*
04/01/82-03/31/83 FY82: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cottrell, S. F. ARC/Miquel, J. 51-Biological Sci
ARC/Philpott, D. E.

NAGW 22 **City College of New York** **3583**
A study of the Martian fretted terrains-lightly cratered terrains boundary
Period *Obligations*
01/01/80-12/31/82 FY82: \$16,127 TOTAL: \$80,375
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weiss, D. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAG 1-6 **City College of New York** **3577**
An adaptive learning control system for large flexible space structures
Period *Obligations*
11/01/79-10/31/82 FY82: \$49,105 TOTAL: \$163,545
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thau, F. E. LARC/Montgomery, R. C. 42-Astro Engr

NAS 1-15669 **City College of New York** **3584**
Verification SEASAT wind speed and direction objectives and demonstration of global capability for extratropical cyclones
Period *Obligations*
02/27/79-08/31/82 FY82: TOTAL: \$227,375
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pierson, W. J. LARC/Schroeder, L. C. 33-Oceanography
LARC/Jones, W. L.

NAG 1-293 **City College of New York** **3578**
Measurement of Reynolds stresses in turbulent compressible flow
Period *Obligations*
08/01/82-07/31/83 FY82: \$150,000 TOTAL: \$150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, J. A. LARC/Bushnell, D. M. 41-Aero Engr
LARC/Weinstein, L. M.

NAS 9-16473 **City College of New York** **3585**
Investigation of digital encoding techniques for television transmission
Period *Obligations*
10/01/81-11/01/82 FY82: TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schilling, D. L. JSC/Schadelbauer, S. 45-Elec Engr

NAG 3-119 **City College of New York** **3579**
A computer simulator for a mobile telephone system
Period *Obligations*
11/01/80-11/30/81 FY82: TOTAL: \$66,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schilling, D. L. LERC/Salzman, J. A. 45-Elec Engr
LERC/Evans, D. D.

NGL 33-013-040 **City College of New York** **3586**
Theoretical research in astrophysics and astronomy
Period *Obligations*
04/23/69-11/30/84 FY82: \$20,000 TOTAL: \$454,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arons, M. GSFC/Thaddeus, P. 11-Astronomy
GSFC/Green, S.

NAG 3-122 **City College of New York** **3580**
Experimental study of turbulence in blade end wall corner region
Period *Obligations*
10/20/80-10/18/82 FY82: TOTAL: \$128,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Raj, R. LERC/Boldman, D. R. 41-Aero Engr

NGR 33-013-086 **City College of New York** **3587**
Models for large scale meteorological prediction experiments
Period *Obligations*
10/01/73-01/31/82 FY82: TOTAL: \$358,575
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spar, J. GSFC/Hansen, J. E. 31-Atmos Sci

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NSG 1485 City College of New York 3588
Theory of strong turbulence by renormalization into repeated-cascade
Period *Obligations*
01/15/78-01/14/81 FY82: TOTAL: \$53,398
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tchen, C. M. LARC/Hess, R. V. 39-Env Sci, NEC
LARC/Maestrello, L.

NSG 2348 City College of New York 3589
Theoretical problems of spiral galaxies
Period *Obligations*
11/01/78-06/30/82 FY82: TOTAL: \$93,761
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yuan, C. ARC/Black, D. C. 11-Astronomy

NAG 3-277 City Univ of Ny - Grad School & Univ Cen 3590
A computer simulator for a mobile telephone system
Period *Obligations*
04/21/82-01/20/83 FY82: \$49,999 TOTAL: \$49,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schilling, D. L. LERC/Evans, D. D. 45-Elec Engr
Ziegler, C. LERC/Salzman, J. A.

NAGW 266 City Univ of Ny - Grad School & Univ Cen 3591
Oceanographic and meteorological research based on the data products of seas
Period *Obligations*
10/01/81-09/30/82 FY82: \$126,066 TOTAL: \$126,066
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pierson, W. J. HQ-EB/McGoldrick, L. F.
HQ-EB/Wilson, W. S. 33-Oceanography

NAS 8-34622 City Univ of Ny - Grad School & Univ Cen 3592
Research study: Theory and modeling of atmospheric turbulence
Period *Obligations*
09/01/81-11/08/83 FY82: \$53,240 TOTAL: \$53,240
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Teher, C. M. MSFC/Alexander, M. B. 31-Atmos Sci

NSG 5334 City Univ of Ny - Grad School & Univ Cen 3593
Relativistic effects in atoms
Period *Obligations*
02/01/79-11/30/82 FY82: TOTAL: \$61,979
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mittleman, M. H. GSFC/Temkin, A. 13-Physics

NAG 1-284 Clarkson College of Technology 3594
Material characterization of structural adhesives in the lap shear mode
Period *Obligations*
06/01/82-05/31/83 FY82: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sancaktak, E. LARC/Johnson, W. S. 46-Mech Engr
LARC/St Clair, T. L.

NAG 3-145 Clarkson College of Technology 3595
Adhesion of ice from helicopter rotor blades and aircraft wings
Period *Obligations*
12/29/80-03/27/83 FY82: \$80,346 TOTAL: \$135,361
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jellinek, H. H. LERC/Schmidt, H. 12-Chemistry

NAG 3-238 Clarkson College of Technology 3596
Electrocatalysis of fuel cell reactions: Investigation of alternate electrolytes
Period *Obligations*
01/01/82-12/31/83 FY82: \$33,622 TOTAL: \$33,622
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chin, D. T. LERC/Lauver, M. R. 19-Phys Sci, NEC

NAS 8-32944 Clarkson College of Technology 3597
Experiment for materials processing in space, physical phenomena in containerless glass processing
Period *Obligations*
02/23/78-12/27/85 FY82: \$70,000 TOTAL: \$564,502
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Subramanian, R. S. MSFC/Fallon, R. A. 13-Physics
Cole, R. MSFC/Johnson, J. L.

NAS 8-34308 Clarkson College of Technology 3598
Chairmanship of the science and engineering advisory board for the solidification experiment system project
Period *Obligations*
01/05/81-02/04/82 FY82: TOTAL: \$29,144
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilcox, W. R. MSFC/Adams, W. R. 19-Phys Sci, NEC
MSFC/Landers, J. C.

NAS 8-34750 Clarkson College of Technology 3599
AgCe related studies of baroclinic flows
Period *Obligations*
05/28/82-05/27/83 FY82: \$29,951 TOTAL: \$29,951
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hyun, J. MSFC/Fowles, W. W. 31-Atmos Sci
MSFC/Leslie, F.

NAS 8-34887 Clarkson College of Technology 3600
Eutectic solidification study
Period *Obligations*
05/03/82-05/02/84 FY82: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilcox, W. R. MSFC/Reeves, F. A. 47-Materials Engr

NAS 8-34891 Clarkson College of Technology 3601
Modelling directional solidification
Period *Obligations*
06/01/82-05/31/85 FY82: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilcox, W. R. MSFC/Moore, W. W., Jr. 19-Phys Sci, NEC
Papatheodorou, T.

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<p>NSG 1572 Clarkson College of Technology 3602 Convection effects during bridgman growth of semiconductors</p> <p><i>Period</i> 12/01/78-09/30/81</p> <p><i>Prin. Invest.</i> Carlson, F.</p>	<p><i>Obligations</i> FY82: TOTAL: \$103,775</p> <p><i>NASA Tech. Officer</i> LARC/Fripp, A. L. LARC/Crouch, R. K.</p> <p><i>CASE Category</i> 13-Physics</p>	<p>NAGW 346 Columbia University 3609 Effects of simulated weightlessness on meiosis fertilization and early development in mice</p> <p><i>Period</i> 07/01/82-06/30/83</p> <p><i>Prin. Invest.</i> Wolgemuth, D. J.</p>	<p><i>Obligations</i> FY82: \$48,882 TOTAL: \$48,882</p> <p><i>NASA Tech. Officer</i> HQ-EB/Halstead, T. W.</p> <p><i>CASE Category</i> 51-Biological Sci</p>
<p>NAG 3-57 Columbia University 3603 The role of cobalt in nickel base super alloys</p> <p><i>Period</i> 07/01/80-09/30/83</p> <p><i>Prin. Invest.</i> Tien, J. K.</p>	<p><i>Obligations</i> FY82: TOTAL: \$367,316</p> <p><i>NASA Tech. Officer</i> LERC/Scheuermann, C. M.</p> <p><i>CASE Category</i> 47-Materials Engr</p>	<p>NAS 3-22464 Columbia University 3610 Study contract for multiple access and network studies for next generation communications satellites</p> <p><i>Period</i> 08/15/80-01/30/82</p> <p><i>Prin. Invest.</i> Meadows, H. Schwarz, M.</p>	<p><i>Obligations</i> FY82: TOTAL: \$88,769</p> <p><i>NASA Tech. Officer</i> LERC/Leroy, B. E.</p> <p><i>CASE Category</i> 45-Elec Engr</p>
<p>NAG 5-33 Columbia University 3604 Research relative to the effect of subduction zones on the low-order of the geoid</p> <p><i>Period</i> 04/01/80-03/31/81</p> <p><i>Prin. Invest.</i> Haxby, W. F. Cochran, J. R.</p>	<p><i>Obligations</i> FY82: TOTAL: \$30,000</p> <p><i>NASA Tech. Officer</i> GSFC/Holweck, E. C. GSFC/Smith, D. E.</p> <p><i>CASE Category</i> 32-Geological Sci</p>	<p>NAS 5-24457 Columbia University 3611 Solar flare X-ray polarimeter experiment</p> <p><i>Period</i> 02/22/78-04/30/83</p> <p><i>Prin. Invest.</i> Novick, R.</p>	<p><i>Obligations</i> FY82: \$286,235 TOTAL: \$1,403,490</p> <p><i>NASA Tech. Officer</i> GSFC/Eiband, A. M.</p> <p><i>CASE Category</i> 11-Astronomy</p>
<p>NAG 5-98 Columbia University 3605 Research of the relationship between gravity and bathymetry in the Pacific Ocean</p> <p><i>Period</i> 10/01/80-09/30/81</p> <p><i>Prin. Invest.</i> Watts, T. S.</p>	<p><i>Obligations</i> FY82: TOTAL: \$50,000</p> <p><i>NASA Tech. Officer</i> GSFC/Welker, J. GSFC/Smith, D. E.</p> <p><i>CASE Category</i> 32-Geological Sci</p>	<p>NAS 5-25891 Columbia University 3612 Analysis of intermediate wavelength anomalies over the oceans in magnetic fields monitor satellite and sea surface data</p> <p><i>Period</i> 02/01/80-11/30/81</p> <p><i>Prin. Invest.</i> Labrecque, J. L.</p>	<p><i>Obligations</i> FY82: \$1,500 TOTAL: \$82,829</p> <p><i>NASA Tech. Officer</i> GSFC/Oseroff, H.</p> <p><i>CASE Category</i> 31-Atmos Sci</p>
<p>NAG 8-425 Columbia University 3606 Bipolar nebulae observational group III F</p> <p><i>Period</i> 01/01/82-12/31/82</p> <p><i>Prin. Invest.</i> Morris, M.</p>	<p><i>Obligations</i> FY82: \$6,011 TOTAL: \$6,011</p> <p><i>NASA Tech. Officer</i> MSFC/Stone, J. F.</p> <p><i>CASE Category</i> 11-Astronomy</p>	<p>NAS 5-26041 Columbia University 3613 Generate an investigation development plan and establish the preliminary interfaces between the space transportation system/ Spacelab and instrument for the wide-band germanium X-ray spectrometer</p> <p><i>Period</i> 02/15/80-12/30/81</p> <p><i>Prin. Invest.</i> Novick, R.</p>	<p><i>Obligations</i> FY82: TOTAL: \$119,317</p> <p><i>NASA Tech. Officer</i> GSFC/Sing, M.</p> <p><i>CASE Category</i> 11-Astronomy</p>
<p>NAGW 18 Columbia University 3607 Reduction and analysis of stellar X-ray spectral and polarimetric data obtained with the Columbia University orbiting solar observatory 8</p> <p><i>Period</i> 10/01/79-10/01/82</p> <p><i>Prin. Invest.</i> Novick, R.</p>	<p><i>Obligations</i> FY82: TOTAL: \$60,000</p> <p><i>NASA Tech. Officer</i> HQ-EZ/Kaluzienski, L. J.</p> <p><i>CASE Category</i> 11-Astronomy</p>	<p>NAS 5-26398 Columbia University 3614 Technical services and materials for the library of Goddard Institute for Space Studies</p> <p><i>Period</i> 11/01/80-10/30/81</p> <p><i>Prin. Invest.</i> Yavarkousky, J. H.</p>	<p><i>Obligations</i> FY82: TOTAL: \$69,855</p> <p><i>NASA Tech. Officer</i> GSFC/Jennings, N.</p> <p><i>CASE Category</i> 13-Physics</p>
<p>NAGW 238 Columbia University 3608 Studies of bone and cartilage during periods of simulated weightlessness</p> <p><i>Period</i> 08/15/81-11/30/83</p> <p><i>Prin. Invest.</i> Doty, S. B.</p>	<p><i>Obligations</i> FY82: \$67,450 TOTAL: \$118,023</p> <p><i>NASA Tech. Officer</i> HQ-EB/Halstead, T. W.</p> <p><i>CASE Category</i> 51-Biological Sci</p>	<p>NAS 5-27237 Columbia University 3615 A plan for VLBI measurements in Alaska to determine plate convergence</p> <p><i>Period</i> 08/06/82-08/06/83</p> <p><i>Prin. Invest.</i> Johnson, T. L. Beavan, J. Bilham, R.</p>	<p><i>Obligations</i> FY82: \$23,466 TOTAL: \$23,466</p> <p><i>NASA Tech. Officer</i> GSFC/Mead, G. D.</p> <p><i>CASE Category</i> 32-Geological Sci</p>

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 5-27239 Columbia University 3616
 Research investigation entitled 'SAFE II'
Period Obligations
 08/10/82-08/10/83 FY82: \$20,590 TOTAL: \$20,590
Prin. Invest. NASA Tech. Officer CASE Category
 Scholz, C. H. GSFC/Mead, G. D. 32-Geological Sci

NAS 8-30753 Columbia University 3617
 Design, development and operation of the HEAO mission B
 X-ray telescope experiment
Period Obligations
 06/01/74-09/30/82 FY82: \$147,911 TOTAL: \$1,171,911
Prin. Invest. NASA Tech. Officer CASE Category
 Novick, R. MSFC/Stone, J. F. 11-Astronomy

NAS 8-33378 Columbia University 3618
 Acoustic and gravity waves in the neutral atmosphere and the
 ionosphere
Period Obligations
 04/18/79-05/17/83 FY82: TOTAL: \$204,618
Prin. Invest. NASA Tech. Officer CASE Category
 Balachandran, N. K. MSFC/West, G. S. 31-Atmos Sci
 MSFC/Smith, R. E.

NAS 8-34713 Columbia University 3619
 Scientific support in the development, integration mission support
 and data analysis of the tribology experiment in zero gravity
 (TEZG)
Period Obligations
 07/01/82-06/30/84 FY82: \$19,710 TOTAL: \$19,710
Prin. Invest. NASA Tech. Officer CASE Category
 Pan, C. H. MSFC/Jones, C. T., III 19-Phys Sci, NEC

NCA 2-172101 Columbia University 3620
 Cellular and subcellular characteristics of bone following space-
 flight
Period Obligations
 11/01/80-10/31/82 FY82: \$24,970 TOTAL: \$44,970
Prin. Invest. NASA Tech. Officer CASE Category
 Doty, S. B. ARC/Holton, E. M. 51-Biological Sci

NCA 2-172102 Columbia University 3621
 Biotelemetric analysis of pediatric long-bone reconstruction
Period Obligations
 05/15/81-05/14/83 FY82: TOTAL: \$32,000
Prin. Invest. NASA Tech. Officer CASE Category
 Pawluk, R. J. ARC/Young, D. R. 56-Medical Sciences
 Dick, H. M.

NCC 1-5 Columbia University 3622
 The influence of auditory inputs on simulated flight operations
Period Obligations
 04/15/79-12/31/82 FY82: \$20,231 TOTAL: \$194,974
Prin. Invest. NASA Tech. Officer CASE Category
 Galanter, E. LARC/Harris, R. L., Sr. 41-Aero Engr

NCC 1-59 Columbia University 3623
 Development of mesh generation software system with interac-
 tive computer graphics
Period Obligations
 12/01/81-11/30/82 FY82: \$25,000 TOTAL: \$25,000
Prin. Invest. NASA Tech. Officer CASE Category
 Eiseman, P. R. LARC/Smith, R. E.
 Chu, C. K. 29-Math/Computer, NEC
 LARC/Shoosmith, J. N.

NCC 5-16 Columbia University 3624
 Multidisciplinary research in space science
Period Obligations
 05/15/79-08/31/83 FY82: \$810,497 TOTAL: \$1,829,928
Prin. Invest. NASA Tech. Officer CASE Category
 Brocken, W. S. GSFC/Travis, L. 31-Atmos Sci
 Flynn, G. W. GSFC/Kerr, A. R.

NCC 5-20 Columbia University 3625
 Application of digital analysis of multi-spectral scanner to
 agro-environmental studies
Period Obligations
 01/01/80-01/31/83 FY82: \$86,000 TOTAL: \$278,951
Prin. Invest. NASA Tech. Officer CASE Category
 Lewis, R. A. GSFC/Ungar, S. G. 32-Geological Sci
 Goward, S. N.

NGR 33-008-102 Columbia University 3626
 Research in X-ray astronomy
Period Obligations
 01/30/68-01/31/83 FY82: \$296,600 TOTAL: \$3,004,942
Prin. Invest. NASA Tech. Officer CASE Category
 Novick, R. GSFC/Early, L. J. 11-Astronomy
 Ku, W. H.
 Long, K. S.

NSG 1450 Columbia University 3627
 Aircraft cabin noise, prediction and optimization
Period Obligations
 09/06/77-01/05/83 FY82: \$61,701 TOTAL: \$289,237
Prin. Invest. NASA Tech. Officer CASE Category
 Vaicaitis, R. LARC/Mixson, J. S. 41-Aero Engr
 LARC/Stephens, D. G.

NSG 1550 Columbia University 3628
 Time-of-day effects on the numerical representation of com-
 munity response to noise
Period Obligations
 07/01/78-09/30/82 FY82: TOTAL: \$218,935
Prin. Invest. NASA Tech. Officer CASE Category
 Galanter, E. LARC/Stephens, D. G. 49-Engr, NEC

NSG 7105 Columbia University 3629
 Calculation of collision cross sections of astrophysical interest
Period Obligations
 12/01/74-12/31/82 FY82: \$36,000 TOTAL: \$286,000
Prin. Invest. NASA Tech. Officer CASE Category
 Flynn, G. HQ-EZ/Bogges, N. W. 11-Astronomy
 HQ-EZ/Weiler, E. J.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 1-18 **Cooper Union College** **3630**
A comprehensive model to determine the effects of temperature and species fluctuations on reaction rates in turbulent reacting flows

<i>Period</i>	<i>Obligations</i>	
02/01/79-01/31/83	FY82: \$37,150	TOTAL: \$101,732
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chinitz, W.	LARC/Evans, J. S.	21-Mathematics
	LARC/Rogers, R. C.	

NAG 1-83 **Cornell University** **3631**
Grapho-epitaxy of gallium-arsenic (GaAs)

<i>Period</i>	<i>Obligations</i>	
07/01/80-10/31/81	FY82: \$47,466	TOTAL: \$47,466
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ballantyne, J. M.	LARC/Conway, E. J.	45-Elec Engr
Wagner, D. K.	LARC/Walker, G. H.	

NAG 1-107 **Cornell University** **3632**
Non-impulsive rotor noise analyses experiments

<i>Period</i>	<i>Obligations</i>	
11/01/80-06/30/83	FY82: \$37,320	TOTAL: \$69,901
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
George, A. R.	LARC/Farassat, F.	41-Aero Engr
	LARC/Brooks, T. F.	

NAG 1-208 **Cornell University** **3633**
Gallium indium arsenic double heterostructure laser grown by molecular beam epitaxial

<i>Period</i>	<i>Obligations</i>	
08/15/81-08/14/82	FY82: \$53,000	TOTAL: \$53,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eastman, L. F.	LARC/Magee, C. J.	45-Elec Engr
Wood, C. E.	LARC/Hendricks, H. D.	

NAG 2-13 **Cornell University** **3634**
Analysis of transonic flow past helicopter rotors

<i>Period</i>	<i>Obligations</i>	
01/01/80-10/31/82	FY82: \$13,921	TOTAL: \$37,637
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Caughey, D. A.	ARC/Tauber, M. E.	41-Aero Engr

NAG 2-70 **Cornell University** **3635**
Stress induced long wavelength photoconductivity in doped silicon infrared detectors

<i>Period</i>	<i>Obligations</i>	
11/01/80-02/28/82	FY82: \$38,300	TOTAL: \$38,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Houck, J. R.	ARC/McCreight, C. R.	13-Physics

NAG 2-158 **Cornell University** **3636**
Ultrapressure materials science

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ruoff, A. L.	ARC/Nelson, H. G.	47-Materials Engr

NAG 2-159 **Cornell University** **3637**
Astrophysical materials science theory

<i>Period</i>	<i>Obligations</i>	
12/01/81-11/30/82	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ashcroft, N. W.	ARC/Nelson, H. G.	47-Materials Engr

NAG 2-177 **Cornell University** **3638**
Long-wavelength photoconductive detectors for airborne and orbital infrared astronomy

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Houck, J. R.	ARC/McCreight, C. R.	13-Physics
Briotta, D. A.	ARC/Lum, H.	

NAG 3-19 **Cornell University** **3639**
Analysis of rotational, transonic flows in turbomachinery

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/30/82	FY82: \$64,000	TOTAL: \$175,280
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Caughey, D. A.	LERC/Johnson, G. M.	41-Aero Engr

NAG 3-104 **Cornell University** **3640**
Analysis of wind energy systems

<i>Period</i>	<i>Obligations</i>	
09/22/80-09/20/82	FY82: \$19,270	TOTAL: \$53,580
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thomas, R. J.	LERC/Gilbert, L. J.	45-Elec Engr

NAG 3-293 **Cornell University** **3641**
Bacteriorhodopsin solar cell: An electricity and hydrogen producing advanced system for powering spacecraft

<i>Period</i>	<i>Obligations</i>	
06/05/82-06/04/83	FY82: \$70,000	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewis, A.	LERC/Bents, D. J.	49-Engr, NEC

NAG 5-39 **Cornell University** **3642**
Finite element research of the surface strain field adjacent to the San Andreas fault

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/82	FY82: \$64,634	TOTAL: \$64,634
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Turcotte, D. L.	GSFC/Weiker, J.	32-Geological Sci
Kulhawy, F. H.	GSFC/Cohen, S. C.	

NAG 5-40 **Cornell University** **3643**
Research of precise leveling space geodesy and geodynamics

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/81	FY82: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Oliver, J. E.	GSFC/Harper, E. L.	32-Geological Sci
Brown, L. D.	GSFC/Allenby, R. J.	

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 5-601 **Cornell University** **3644**
Interferometric phase velocity measurements of plasma waves
in the Earth's ionosphere
Period *Obligations*
02/01/82-01/31/83 FY82: \$25,095 TOTAL: \$25,095
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kintner, P. M. GSFC/Early, L. J. 13-Physics
Kelley, M. C. WFC/Pless, R. H.

NAGW 3 **Cornell University** **3645**
The amyloplast as a gravity sensing device in plants
Period *Obligations*
10/01/79-03/31/83 FY82: \$33,200 TOTAL: \$140,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leopold, A. C. HQ-EB/Halstead, T. W. 51-Biological Sci

NAGW 90 **Cornell University** **3646**
Theoretical studies of plasma convection and magnetic field
reconnection in the Sun and in the Earth's magnetosphere
Period *Obligations*
06/01/80-05/31/83 FY82: TOTAL: \$312,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sudan, R. N. HQ-EE/Butler, D. 13-Physics

NAGW 111 **Cornell University** **3647**
A study of particle size sorting in Martian wind streaks
Period *Obligations*
11/01/81-11/30/82 FY82: \$25,190 TOTAL: \$50,040
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thomas, P. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NAGW 116 **Cornell University** **3648**
Radar investigation of asteroids
Period *Obligations*
11/01/80-06/30/83 FY82: \$45,220 TOTAL: \$59,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ostro, S. J. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Murphy, R. E.

NAGW 193 **Cornell University** **3649**
Sulfur in the Jovian satellite system
Period *Obligations*
04/01/81-03/31/83 FY82: \$54,120 TOTAL: \$102,120
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Boyce, J.

NAGW 310 **Cornell University** **3650**
Studies of planetary rings
Period *Obligations*
04/01/82-03/31/83 FY82: \$29,100 TOTAL: \$29,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burns, J. A. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Boyce, J.

NAGW 362 **Cornell University** **3651**
Stratospheric dynamics—observational studies
Period *Obligations*
06/01/82-05/31/83 FY82: \$83,475 TOTAL: \$83,475
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Farley, D. T. HQ-EE/Chandra, S. 31-Atmos Sci
HQ-EE/Watson, R. T.

NAS 5-23236 **Cornell University** **3652**
Feasibility study for infrared interferometer, spectrometer, and
radiometer for Mariner/Jupiter 1977 launch
Period *Obligations*
05/01/73-12/01/82 FY82: \$18,000 TOTAL: \$113,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gierasch, P. J. GSFC/Conrath, B. J. 13-Physics

NAS 5-26669 **Cornell University** **3653**
Ten (Ge-Ga) gallium-doped germanium photo conductors
Period *Obligations*
08/20/81-01/19/82 FY82: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harwit, M. GSFC/Moseley, S. H. 19-Phys Sci, NEC

NAS 5-27232 **Cornell University** **3654**
Space based measurements of crustal deformation in the U.S.
Period *Obligations*
07/15/82-07/15/84 FY82: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oliver, J. GSFC/Mead, G. D. 32-Geological Sci

NAS 5-27340 **Cornell University** **3655**
Correlation of data on strain accumulation adjacent to the San
Andreas fault with available models
Period *Obligations*
09/09/82-09/09/84 FY82: \$24,000 TOTAL: \$24,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turcotte, D. L. GSFC/Mead, G. 32-Geological Sci

NASW 3342 **Cornell University** **3656**
Set up a computer system for the spacecraft planetary imaging
facility at Cornell
Period *Obligations*
10/01/79-10/31/82 FY82: \$49,160 TOTAL: \$174,964
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NCA 2-175001 **Cornell University** **3657**
The motion of circumplanetary particles: The origin and evolution
of planetary rings, and possible dust coatings of regular
satellites
Period *Obligations*
02/01/80-01/31/82 FY82: TOTAL: \$16,555
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burns, J. A. ARC/Pollack, J. B. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NCC 2-138 **Cornell University** **3658**
Aeroacoustics and helicopter noise
Period *Obligations*
05/01/81-07/31/81 **FY82:** **TOTAL: \$8,499**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
George, A. R. ARC/Tauber, M. E. 41-Aero Engr

NGR 33-010-146 **Cornell University** **3666**
Submillimeter astronomical spectrometry from aircraft
Period *Obligations*
02/01/72-10/31/82 **FY82: \$70,790** **TOTAL: \$397,504**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harwit, M. O. ARC/Mason, R. H. 11-Astronomy

NCC 2-173 **Cornell University** **3659**
Helicopter rotor aerodynamics/acoustics interactions
Period *Obligations*
02/01/82-01/31/83 **FY82: \$11,693** **TOTAL: \$11,693**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
George, A. R. ARC/Tauber, M. E. 41-Aero Engr

NGR 33-010-161 **Cornell University** **3667**
Studies of the magnetospheres of Earth and Jupiter
Period *Obligations*
01/18/72-06/30/83 **FY82: \$85,000** **TOTAL: \$597,790**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Farley, D. T. HQ-EE/Lynch, J. T. 11-Astronomy
HQ-EE/Schmerling, E. R.

NGL 33-010-082 **Cornell University** **3660**
The study of lunar and planetary surfaces and atmospheres
Period *Obligations*
09/23/68-12/31/82 **FY82: \$50,000** **TOTAL: \$870,518**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

NGR 33-010-220 **Cornell University** **3668**
Interdisciplinary investigations of Mariner 9 data
Period *Obligations*
12/05/73-11/30/82 **FY82: \$47,870** **TOTAL: \$448,996**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. E. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E. *

NGL 33-010-171 **Cornell University** **3661**
A program in remote sensing
Period *Obligations*
02/14/72-05/01/83 **FY82:** **TOTAL: \$1,000,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Philipson, W. R. HQ-ET/Vitale, J. A. 39-Env Sci, NEC

NSG 1642 **Cornell University** **3669**
Devices for integrated electro-optic circuits
Period *Obligations*
07/15/79-07/14/82 **FY82:** **TOTAL: \$169,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ballantyne, J. M. LARC/Magee, C. J. 45-Elec Engr
LARC/Hendricks, H. D.

NGL 33-010-186 **Cornell University** **3662**
Studies of thermal structure and motion of planetary atmospheres
Period *Obligations*
04/18/73-06/14/83 **FY82: \$59,400** **TOTAL: \$467,063**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gierasch, P. J. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

NSG 1651 **Cornell University** **3670**
Holographic fabrication of gratings in metal substrates
Period *Obligations*
08/15/79-10/31/82 **FY82: \$27,400** **TOTAL: \$155,412**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ballantyne, J. M. LARC/Walker, G. H. 45-Elec Engr
Wagner, D. K. LARC/Conway, E. J.

NGR 33-010-081 **Cornell University** **3663**
2 to 4 micron spectroscopy of Mars
Period *Obligations*
03/01/73-10/31/82 **FY82: \$135,000** **TOTAL: \$725,087**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Houck, J. R. ARC/Haughney, L. C. 11-Astronomy

NSG 2347 **Cornell University** **3671**
Far infrared spectral line observations from the G. P. Kuiper Airborne Observatory
Period *Obligations*
10/01/78-10/31/82 **FY82: \$122,000** **TOTAL: \$440,755**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harwit, M. ARC/Haughney, L. C. 11-Astronomy

NGR 33-010-101 **Cornell University** **3664**
An integrated program in exobiology and problems related to origin of life
Period *Obligations*
10/09/69-09/30/82 **FY82: \$110,000** **TOTAL: \$1,084,445**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. E. HQ-EB/Devincenzi, D. L. 12-Chemistry
Khare, B. N.

NSG 2382 **Cornell University** **3672**
A study to assess the potential for using long chain polymers dissolved in water to study turbulence
Period *Obligations*
06/01/79-05/31/82 **FY82:** **TOTAL: \$109,800**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lumley, J. L. ARC/Chapman, G. T. 41-Aero Engr

NGR 33-010-108 **Cornell University** **3665**
Implications of convection within the Moon
Period *Obligations*
05/18/70-03/31/83 **FY82: \$32,000** **TOTAL: \$292,881**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turcotte, D. L. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NSG 2389 **Cornell University** **3673**
An evaluation of metal oxide semiconductor field effect transistor and metal semiconductor field effect transistor devices as preamplifiers at liquid helium temperatures
Period *Obligations*
06/01/79-08/31/81 FY82: TOTAL: \$62,431
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, C. A. ARC/McCreight, C. R. 45-Elec Engr
Houck, J. R.

NSG 2408 **Cornell University** **3674**
Aerobic biological waste treatment for closed ecological life support systems
Period *Obligations*
09/15/79-05/14/83 FY82: TOTAL: \$154,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shuler, M. L. ARC/Wydeven, T. 39-Env Sci, NEC

NSG 2412 **Cornell University** **3675**
Molecular spectroscopy from the Kuiper Airborne Observatory
Period *Obligations*
10/01/79-01/31/83 FY82: \$146,000 TOTAL: \$273,640
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Beckwith, S. ARC/Haughney, L. C. 11-Astronomy

NSG 6020 **Cornell University** **3676**
Rocket investigation of neutral atmosphere ionosphere coupling and planetary electrodynamics
Period *Obligations*
03/01/78-09/30/82 FY82: \$96,741 TOTAL: \$385,392
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kelley, M. C. GSFC/Early, L. J. 19-Phys Sci, NEC

NSG 7156 **Cornell University** **3677**
Physical studies of planetary surfaces
Period *Obligations*
07/01/75-09/30/82 FY82: \$45,500 TOTAL: \$280,721
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Quaide, W. L.

NSG 7324 **Cornell University** **3678**
Bolometer system
Period *Obligations*
04/01/77-05/31/83 FY82: TOTAL: \$185,450
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Houck, J. R. HQ-EZ/Boggess, N. W. 11-Astronomy
HQ-EZ/Weiler, E. J.

NSG 7487 **Cornell University** **3679**
Astrophysical materials science theory
Period *Obligations*
10/01/78-12/31/81 FY82: TOTAL: \$193,621
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ashcroft, N. W. LERC/Brown, G. V. 13-Physics

NSG 7488 **Cornell University** **3680**
Research on ultrahigh pressure materials science
Period *Obligations*
10/01/78-12/31/81 FY82: TOTAL: \$500,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ruoff, A. L. LERC/Brown, G. V. 47-Materials Engr

NSG 7529 **Cornell University** **3681**
Phylogeny of photosynthetic bacteria
Period *Obligations*
02/01/79-12/31/82 FY82: \$11,000 TOTAL: \$29,119
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gibson, J. HQ-EB/Devincenzi, D. L. 51-Biological Sci

NSG 7546 **Cornell University** **3682**
Participation in the Mars data analysis program: Global and regional studies of wind-indicators on the surface of Mars
Period *Obligations*
04/01/79-12/31/82 FY82: \$34,000 TOTAL: \$174,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NSG 7547 **Cornell University** **3683**
Participation in the Mars data analysis comparative study of the surface of Phobos and Deimos
Period *Obligations*
03/01/79-03/31/81 FY82: TOTAL: \$64,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-EL/Boyce, J. M. 32-Geological Sci

NSG 7593 **Cornell University** **3684**
Dynamical studies of Phobos and Deimos
Period *Obligations*
03/01/79-07/15/83 FY82: \$43,000 TOTAL: \$129,604
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burns, J. A. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NSG 7606 **Cornell University** **3685**
Effects of photometric geometry on spectral reflectance measurements
Period *Obligations*
05/01/79-03/31/83 FY82: \$51,000 TOTAL: \$193,860
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NSG 7612 **Cornell University** **3686**
Participation in the Mars data analysis program: Analysis of cloud forms in Viking and Mariner 9 images
Period *Obligations*
04/01/79-10/31/83 FY82: \$60,000 TOTAL: \$178,670
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gierasch, P. J. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NSG 2259 Cornell University - Medical Center 3687
Central neural and neurochemical mechanisms subserving
postural cardiovascular changes
Period *Obligations*
10/01/77-09/30/81 FY82: TOTAL: \$179,967
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reis, D. J. ARC/Sandler, H. 59-Life Sci, NEC

NGR 33-209-002 Hofstra University 3688
Radar studies and application of measurements of ocean wave
height and directional spectrum
Period *Obligations*
03/28/72-12/31/82 FY82: \$31,099 TOTAL: \$259,869
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weissman, W. E. LARC/Johnson, J. W. 45-Elec Engr

NAG 5-273 Hunter College 3689
Reflectance modeling
Period *Obligations*
09/01/82-08/31/83 FY82: \$61,688 TOTAL: \$61,688
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strahler, A. H. GSFC/Kimes, D. 55-Agriculture Sci

NCA 2-305201 Hunter College 3690
A survey of geographic information system characteristics
Period *Obligations*
08/01/82-07/31/83 FY82: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strahler, A. ARC/Peterson, D. L. 32-Geological Sci
Clarke, K. ARC/Wilson, D. E.

NSG 5325 Hunter College 3691
Monitoring tropical vegetation succession with LANDSAT data
Period *Obligations*
02/01/79-03/31/82 FY82: TOTAL: \$26,727
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Robinson, V. B. GSFC/Ungar, S. G. 32-Geological Sci

NAG 1-155 New York University 3692
Numerical simulation of the interaction of acoustic sources with
a jet
Period *Obligations*
03/04/81-03/03/83 FY82: \$5,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bayliss, A. LARC/Maestrello, L. 41-Aero Engr

NAG 5-73 New York University 3693
Multifrequency observations of selected extragalactic sources
Period *Obligations*
06/01/80-02/28/83 FY82: \$25,300 TOTAL: \$48,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassgold, A. E. GSFC/Kondo, Y. 11-Astronomy
Bregman, J. N.
Huggins, P. J.

NAG 5-122 New York University 3694
Observations of the Lyman discontinuity in low redshift clouds
Period *Obligations*
11/01/80-01/31/82 FY82: TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassgold, A. E. GSFC/Boggess, A. 11-Astronomy
Breman, J. N.
Huggins, P. H.

NAG 8-337 New York University 3695
Gaseous coronae of galaxies and red quasi stellar objects
Period *Obligations*
03/01/80-02/28/82 FY82: TOTAL: \$11,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassgold, A. E. MSFC/Jones, J. B. 11-Astronomy

NAG 8-343 New York University 3696
Super nova-like quasars
Period *Obligations*
03/01/80-02/28/82 FY82: TOTAL: \$4,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huggins, P. J. MSFC/Jones, J. B. 11-Astronomy

NAG 8-358 New York University 3697
The galactic supernova remnant S147
Period *Obligations*
07/01/80-12/31/81 FY82: TOTAL: \$5,280
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassgold, A. E. MSFC/Swearingen, J. C. 11-Astronomy

NAG 8-393 New York University 3698
Red quasi stellar objects II
Period *Obligations*
06/18/81-06/17/82 FY82: TOTAL: \$7,424
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassgold, A. E. MSFC/Stone, J. F. 11-Astronomy

NAGW 194 New York University 3699
Symposium on the origin of nebula
Period *Obligations*
09/01/81-03/31/82 FY82: TOTAL: \$4,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassgold, A. E. HQ-EZ/Boggess, N. W. 11-Astronomy
HQ-EZ/Weiler, E. J.

NCA 2-525101 New York University 3700
High resolution methods for the solution of 2-D flows with
discontinuities
Period *Obligations*
06/15/81-10/15/81 FY82: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harten, A. ARC/Warming, R. F. 21-Mathematics

NCA 2-525201 New York University 3701
Use of high-resolution total variation diminishing schemes for
steady state calculations
Period *Obligations*
06/15/82-10/15/82 FY82: \$15,773 TOTAL: \$15,773
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harten, A. ARC/Warming, R. F. 21-Mathematics
ARC/Yee, H.

**NASA'S UNIVERSITY PROGRAM
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NCC 1-58	New York University	3702			
Analysis of vortex wake structure					
	<i>Period</i>	<i>Obligations</i>			
	11/03/81-11/02/82	FY82: \$16,000	TOTAL: \$16,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Ting, L.	LARC/Liu, C. H.	41-Aero Engr		
NGR 33-016-196	New York University	3703			
Physical properties of molecular clouds					
	<i>Period</i>	<i>Obligations</i>			
	09/01/73-05/31/83	FY82: \$42,000	TOTAL: \$313,823		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Glassgold, A. E.	HQ-EZ/Bogges, N. W.	13-Physics		
		HQ-EZ/Weiler, E. J.			
NGR 33-016-201	New York University	3704			
Study of transonic flow over yawed wings					
	<i>Period</i>	<i>Obligations</i>			
	09/01/73-10/31/82	FY82: \$50,000	TOTAL: \$451,662		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Garabedian, P. R.	ARC/Hicks, R. M.	41-Aero Engr		
NGT 33-016-800	New York University	3705			
Graduate student training program in computational fluid dynamics					
	<i>Period</i>	<i>Obligations</i>			
	07/01/80-12/31/82	FY82: \$100,000	TOTAL: \$275,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Garabedian, P. R.	HQ-RT/Graves, R. A.	41-Aero Engr		
NSG 1579	New York University	3706			
Computational fluid dynamics on the star					
	<i>Period</i>	<i>Obligations</i>			
	12/01/78-11/30/82	FY82: \$75,000	TOTAL: \$525,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Garabedian, P. R.	LARC/South, J. C., Jr.	21-Mathematics		
NSG 3059	New York University	3707			
Analysis of experiments on hydrodynamics instability in the absence of gravity					
	<i>Period</i>	<i>Obligations</i>			
	06/01/75-08/28/83	FY82:	TOTAL: \$63,614		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Ting, L.	LERC/Chai, A. T.	49-Engr, NEC		
NSG 5034	New York University	3708			
Research program in climatology and meteorology					
	<i>Period</i>	<i>Obligations</i>			
	01/01/75-01/31/83	FY82: \$108,000	TOTAL: \$828,713		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Isacson, E.	GSFC/Halem, M.	31-Atmos Sci		
		Stoker, J. J.			
NSG 5130	New York University	3709			
Short term numerical weather prediction and very long term climate modelling					
	<i>Period</i>	<i>Obligations</i>			
	10/01/76-10/31/84	FY82: \$87,600	TOTAL: \$427,412		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Ghil, M.	GSFC/Halem, M.	31-Atmos Sci		
NSG 7636	New York University	3710			
To conduct research on the effectiveness of government sponsored civilian research and development					
	<i>Period</i>	<i>Obligations</i>			
	07/01/79-10/31/81	FY82:	TOTAL: \$168,524		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Fusfeld, H. I.	HQ-ET/Roberson, F. I.	99-Multi-Discip		
	Nelson, R. R.	HQ-ET/Ault, L. A.			
NAG 1-183	Polytechnic Institute of New York	3711			
A study of shock-fitting procedures for transonic flow					
	<i>Period</i>	<i>Obligations</i>			
	05/01/81-08/31/82	FY82:	TOTAL: \$29,930		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Grossman, B.	LARC/South, J. C., Jr.	41-Aero Engr		
NAGW 51	Polytechnic Institute of New York	3712			
Investigate traveling ionospheric disturbances in Earth's ionosphere by analysis of satellite to satellite differential Doppler data available from the 1975 Apollo-Soyuz test project					
	<i>Period</i>	<i>Obligations</i>			
	08/01/80-07/31/81	FY82:	TOTAL: \$26,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Gross, S. H.	HQ-EZ/Hedin, A. E.	13-Physics		
		HQ-EZ/Schmerling, E. R.			
NAGW 284	Polytechnic Institute of New York	3713			
Study of large scale structures in the topside ionosphere using Alouette 1 and ISIS data					
	<i>Period</i>	<i>Obligations</i>			
	02/01/82-01/31/83	FY82: \$40,000	TOTAL: \$40,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Gross, S. H.	HQ-EZ/Benson, R. F.	13-Physics		
		HQ-EZ/Schmerling, E. R.			
NCC 2-87	Polytechnic Institute of New York	3714			
The nonlinear potential equation and its conversion to a Ffowcs Williams-Hawkings integral equation					
	<i>Period</i>	<i>Obligations</i>			
	07/01/80-01/31/81	FY82:	TOTAL: \$24,505		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Ison, M. P.	ARC/Smith, F. H.	41-Aero Engr		
		ARC/Yu, Y. H.			
NCC 2-172	Polytechnic Institute of New York	3715			
Geometrical acoustics and transonic helicopter sound					
	<i>Period</i>	<i>Obligations</i>			
	02/01/82-01/31/83	FY82: \$38,000	TOTAL: \$38,000		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Isom, M.	ARC/Yu, Y. H.	41-Aero Engr		
NGR 33-006-070	Polytechnic Institute of New York	3716			
Synthesis of polypeptides, sugar phosphates and polynucleotides from intermediates under simulated conditions					
	<i>Period</i>	<i>Obligations</i>			
	04/26/73-06/15/83	FY82: \$85,215	TOTAL: \$499,209		
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
	Eirich, F. R.	HQ-EB/Devincenzi, D. L.	12-Chemistry		

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NSG 1248 Polytechnic Institute of New York 3717
Calculation of supersonic flow past aircraft with shocks
Period Obligations
10/01/75-10/31/81 FY82: TOTAL: \$338,361
Prin. Invest. NASA Tech. Officer CASE Category
Moretti, G. LARC/Salas, M. D. 41-Aero Engr

NSG 2147 Polytechnic Institute of New York 3718
Exploratory synthesis of new fire safe polymeric materials
Period Obligations
05/01/76-08/31/82 FY82: \$4,431 TOTAL: \$350,847
Prin. Invest. NASA Tech. Officer CASE Category
Pearce, E. M. ARC/Rosser, R. W. 12-Chemistry

NSG 5284 Polytechnic Institute of New York 3719
A morphological study of waves in the thermosphere
Period Obligations
07/01/78-12/31/82 FY82: TOTAL: \$72,104
Prin. Invest. NASA Tech. Officer CASE Category
Gross, S. H. GSFC/Spencer, N. W. 31-Atmos Sci

NAG 4-6 Queensborough Community College 3720
Sensor redundancy management: A conditional probability approach to determining thresholds and minimizing false alarms
Period Obligations
03/01/81-02/28/82 FY82: TOTAL: \$26,611
Prin. Invest. NASA Tech. Officer CASE Category
Scalzo, F. DFRF/Montgomery, T. D. 21-Mathematics

NAG 4-9 Queensborough Community College 3721
Development of a design methodology for determining threshold values through a statistical analysis of sensor output data from current and experiment sensor redundancy management algorithms
Period Obligations
06/15/82-06/14/83 FY82: \$30,586 TOTAL: \$30,586
Prin. Invest. NASA Tech. Officer CASE Category
Scalzo, F. DFRF/MacKall, D. A. 21-Mathematics

NCA 2-625902 Queensborough Community College 3722
Analysis of interaction of age, sex, and bed rest deconditioning on cardiovascular parameters and predictive indices
Period Obligations
01/01/79-12/31/80 FY82: TOTAL: \$36,852
Prin. Invest. NASA Tech. Officer CASE Category
Yuster, R. ARC/Goldwater, D. 56-Medical Sciences
ARC/Sandler, H.

NCC 2-108 Queensborough Community College 3723
Application of FDM to fiber optic data bussing in real time redundant, distributed computing systems
Period Obligations
09/01/80-10/31/82 FY82: \$58,948 TOTAL: \$116,432
Prin. Invest. NASA Tech. Officer CASE Category
Zanger, H. ARC/Webster, L. D. 45-Elec Engr

NAG 1-61 Rensselaer Polytechnic Institute 3724
Data acquisition and analysis of range-finding system for space construction
Period Obligations
05/01/80-08/31/81 FY82: TOTAL: \$60,300
Prin. Invest. NASA Tech. Officer CASE Category
Shen, C. N. LARC/Barker, L. K. 21-Mathematics

NAG 1-171 Rensselaer Polytechnic Institute 3725
Parameter estimation of large flexible aerospace structures with application to control of maypole deployable reflector
Period Obligations
04/01/81-03/31/83 FY82: \$78,830 TOTAL: \$216,418
Prin. Invest. NASA Tech. Officer CASE Category
Balas, M. J. LARC/Armstrong, E. S. 45-Elec Engr
LARC/Taylor, L. W., Jr.

NAG 1-253 Rensselaer Polytechnic Institute 3726
Mechanical properties studies pertaining to enhanced toughness matrices for high performance composites
Period Obligations
02/01/82-01/31/83 FY82: \$76,102 TOTAL: \$76,102
Prin. Invest. NASA Tech. Officer CASE Category
Sternstein, S. S. LARC/Johnston, N. J. 47-Materials Engr

NAG 2-198 Rensselaer Polytechnic Institute 3727
Infrared observations of star-forming regions in the outer Milkyway
Period Obligations
10/01/82-09/30/83 FY82: \$9,943 TOTAL: \$9,943
Prin. Invest. NASA Tech. Officer CASE Category
Kutner, M. L. ARC/Haughney, L. C. 11-Astronomy

NAG 3-22 Rensselaer Polytechnic Institute 3728
Creep-fatigue interactions in nickel base superalloys
Period Obligations
01/01/80-08/15/83 FY82: \$44,887 TOTAL: \$109,887
Prin. Invest. NASA Tech. Officer CASE Category
Duquette, D. J. LERC/Miner, R. V. 47-Materials Engr
Stoloff, N. S. LERC/Hirshberg, M. H.

NAG 3-37 Rensselaer Polytechnic Institute 3729
Proposal structural dynamics studies for fan/turbine design
Period Obligations
03/03/80-06/14/83 FY82: \$75,000 TOTAL: \$200,000
Prin. Invest. NASA Tech. Officer CASE Category
Loewy, R. G. LERC/Kiraly, L. J. 46-Mech Engr
Shephard, M. S. LERC/Kielb, R. E.

NAG 3-175 Rensselaer Polytechnic Institute 3730
Low temperature growth and electrical characterization of insulators for gas
Period Obligations
05/01/81-07/29/83 FY82: \$44,945 TOTAL: \$114,940
Prin. Invest. NASA Tech. Officer CASE Category
Borrego, J. M. LERC/Liu, D. C. 19-Phys Sci, NEC
Ghandhi, S. K.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAG 3-188 Rensselaer Polytechnic Institute 3731
Research on gallium arsenide diffused junction solar cells

<i>Period</i>	<i>Obligations</i>	
06/25/81-12/31/82	FY82: \$64,990	TOTAL: \$91,490
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ghandi, S. K.	LERC/Brinker, D.	45-Elec Engr
Borrego, J. M.	LERC/Curtis, H. B.	

NAG 3-292 Rensselaer Polytechnic Institute 3738
Effects of pressure gradients, temperature, and wall temperature ratio on the stagnation point heat transfer for circular cylinders and gas turbineranges

<i>Period</i>	<i>Obligations</i>	
08/01/82-07/31/83	FY82: \$58,500	TOTAL: \$58,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Duffy, R. E.	LERC/Graham, R. W.	46-Mech Engr
Nagamatsu, H. T.		

NAG 3-199 Rensselaer Polytechnic Institute 3732
Tetrahydrofuran-containing polymers as battery separators

<i>Period</i>	<i>Obligations</i>	
09/01/81-10/30/82	FY82:	TOTAL: \$45,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moore, J. A.	LERC/Sheibley, D. W.	12-Chemistry

NAG 3-333 Rensselaer Polytechnic Institute 3739
Influence of melt convection on solid liquid interfaces under terrestrial and reduced gravity environments

<i>Period</i>	<i>Obligations</i>	
10/01/82-09/30/83	FY82: \$150,000	TOTAL: \$150,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glicksman, M. E.	LERC/Gray, H. R.	47-Materials Engr
	LERC/Chai, A.	

NAG 3-203 Rensselaer Polytechnic Institute 3733
Chemical vapor deposition of single crystalline silicon carbide (SiC) suitable for semi-conductor applications

<i>Period</i>	<i>Obligations</i>	
09/01/81-02/28/83	FY82:	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Diefen, R. J.	LERC/Powell, J. A.	47-Materials Engr

NAS 8-32425 Rensselaer Polytechnic Institute 3740
Dendritic solidification at small supercooling

<i>Period</i>	<i>Obligations</i>	
03/01/77-01/31/83	FY82:	TOTAL: \$303,002
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glicksman, M. E.	MSFC/Moore, W. W., Jr.	
	MSFC/Lacy, L. L.	47-Materials Engr

NAG 3-205 Rensselaer Polytechnic Institute 3734
Emission infrared Fourier microspectro photometric study of fuel deposit formation

<i>Period</i>	<i>Obligations</i>	
08/15/81-08/14/83	FY82:	TOTAL: \$83,255
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lauer, J. L.	GSFC/Seng, G. T.	12-Chemistry

NAS 8-32690 Rensselaer Polytechnic Institute 3741
Solidification processes involving solutes

<i>Period</i>	<i>Obligations</i>	
07/24/78-10/31/80	FY82: \$10,288	TOTAL: \$92,288
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Glicksman, M. E.	MSFC/Bannister, T. C.	12-Chemistry
	MSFC/Lacy, L. L.	

NAG 3-213 Rensselaer Polytechnic Institute 3735
Characterization of melting and freezing of fuels by thermal analysis

<i>Period</i>	<i>Obligations</i>	
10/15/81-10/13/83	FY82: \$57,975	TOTAL: \$110,455
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Moynihn, C. T.	LERC/Friedman, R.	43-Chem Engr

NAS 8-32936 Rensselaer Polytechnic Institute 3742
Vapor growth of alloy-type semiconductor crystals experiment

<i>Period</i>	<i>Obligations</i>	
03/20/78-03/20/83	FY82: \$83,000	TOTAL: \$437,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wyss, M.	MSFC/Schaefer, D. A.	47-Materials Engr
Davidson, M. C.	MSFC/Williams, J. R.	
Irene, E. A.		

NAG 3-222 Rensselaer Polytechnic Institute 3736
Rates of bearing surface change under operating conditions by non-contact speckle metrology

<i>Period</i>	<i>Obligations</i>	
12/15/81-12/14/82	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lauer, J. L.	LERC/Jones, W. R.	46-Mech Engr

NAS 8-33562 Rensselaer Polytechnic Institute 3743
Data analysis and modeling of ultraviolet spectrometer and polarimeter, experiment and other related experiments for Solar Maximum Mission

<i>Period</i>	<i>Obligations</i>	
02/08/80-02/07/83	FY82: \$72,000	TOTAL: \$170,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wiedemeier, H.	MSFC/Schaefer, D. A.	31-Atmos Sci
	MSFC/Zwiener, J. M.	

NAG 3-262 Rensselaer Polytechnic Institute 3737
Thermoviscoplasticity theory for thermomechanical loading

<i>Period</i>	<i>Obligations</i>	
02/25/82-02/24/83	FY82: \$42,685	TOTAL: \$42,685
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Krempf, E.	LERC/Thompson, R. L.	41-Aero Engr
	LERC/Johns, R. H.	

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NASW 3279 Rensselaer Polytechnic Institute 3744
Data acquisition and path selection decision making for an autonomous roving vehicle

<i>Period</i>	<i>Obligations</i>	
03/01/79-08/31/80	FY82: TOTAL: \$91,366	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yerazunis, S. W.	HQ-RT/Gevarter, W. B.	31-Atmos Sci
Frederick, D. K.	LARC/Wooley, C.	
Gisser, D. G.		

NSG 3170 Rensselaer Polytechnic Institute 3750
Determination of physical and chemical states of lubricants in concentrated contacts using infrared Fourier transform spectroscopy

<i>Period</i>	<i>Obligations</i>	
01/01/78-06/30/82	FY82: TOTAL: \$164,625	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lauer, J. L.	LERC/Jones, W. R., Jr.	13-Physics

NGL 33-018-003 Rensselaer Polytechnic Institute 3745
Interdisciplinary materials research including fundamental physics and chemistry of materials, environmental effects, and related problems

<i>Period</i>	<i>Obligations</i>	
09/01/70-04/30/85	FY82: \$400,000 TOTAL: \$6,909,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Loewry, R. G.	HQ-RT/Greenfield, M. A.	
Wiberly, S. E.	HQ-RT/Bersch, C. F.	47-Materials Engr

NSG 3262 Rensselaer Polytechnic Institute 3751
Suggested programs for unsteady turbine heat transfer

<i>Period</i>	<i>Obligations</i>	
05/01/79-09/28/83	FY82: \$80,619 TOTAL: \$291,289	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mayle, R. E.	LERC/Vanfossen, G. J., Jr.	41-Aero Engr
	LERC/Simoneau, R. J.	

NGR 33-018-148 Rensselaer Polytechnic Institute 3746
Photochemical investigations of the atmosphere of other planets

<i>Period</i>	<i>Obligations</i>	
08/27/70-11/01/82	FY82: \$85,922 TOTAL: \$553,208	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ferris, J. P.	HQ-EB/Devincenzi, D. L.	12-Chemistry
Greenberg, J. M.		

NAS 5-27323 Rochester Institute of Technology 3752
Radiometric integrity of LANDSAT-D band 7 data evaluation

<i>Period</i>	<i>Obligations</i>	
09/24/82-01/24/85	FY82: \$25,000 TOTAL: \$25,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schott, J. R.	GSFC/Oseroff, H.	49-Engr, NEC
	GSFC/Stuart, L. M.	

NSG 1510 Rensselaer Polytechnic Institute 3747
Improved high modulus carbon fibers

<i>Period</i>	<i>Obligations</i>	
04/01/78-12/31/80	FY82: TOTAL: \$413,540	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ansell, G. S.	LARC/Dicus, D. L.	47-Materials Engr
Diefendorf, R. J.		

NAG 2-164 Rockefeller University 3753
Vestibular system and neural correlates of motion sickness

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$40,000 TOTAL: \$40,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, A. D.	ARC/Daunton, N. G.	51-Biological Sci
Wilson, V. J.	ARC/Suri, K.	
Schor, R. H.		

NSG 1624 Rensselaer Polytechnic Institute 3748
Investigation of passive shock wave-boundary layer control for transonic airfoil drag reduction

<i>Period</i>	<i>Obligations</i>	
10/01/79-03/31/82	FY82: TOTAL: \$109,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nagamatsu, H. T.	LARC/Harris, C. D.	41-Aero Engr
Brower, W. B.	LARC/Barnwell, R. W.	

NAGW 321 Rockefeller University 3754
Studies of the origin and early evolution of photosynthesis

<i>Period</i>	<i>Obligations</i>	
04/15/82-04/14/83	FY82: \$52,539 TOTAL: \$52,539	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mercer-smith, J. A.	HQ-EB/Devincenzi, D. L.	
Mauzerall, D.		51-Biological Sci

NCA 2-630001 Rockefeller University 3755
Investigation of nucleic acid interaction with activated amino acids in amino acid polymerization

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/82	FY82: TOTAL: \$53,246	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Loew, G. H.	ARC/MacElroy, R. D.	51-Biological Sci

NSG 1628 Rensselaer Polytechnic Institute 3749
Free-electron laser from wave mechanical beats of two electron beams

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/81	FY82: TOTAL: \$42,200	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lichenstein, R. M.	LARC/Meador, W. E.	13-Physics
	LARC/Hohl, F.	

NCC 2-196 Rockefeller University 3756
Mg++ interaction with hydrated phosphate groups of nucleic acids and with amino acids as potential activators in peptide bond formation

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$33,708 TOTAL: \$33,708	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Loew, G.	ARC/MacElroy, R. D.	12-Chemistry

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NSG 2380 Rockefeller University 3757
 Vestibulocollic reflexes of otolith origin
Period Obligations
 04/01/79-12/31/83 FY82: \$62,000 TOTAL: \$172,872
Prin. Invest. NASA Tech. Officer CASE Category
 Wilson, V. J. ARC/Daunton, N. G. 51-Biological Sci

NAS 9-15802 State Univ of New York - Albany 3764
 Research study of non-invasive monitoring of cardio-pulmonary function
Period Obligations
 05/01/79-06/30/82 FY82: TOTAL: \$108,149
Prin. Invest. NASA Tech. Officer CASE Category
 Farhi, L. E. JSC/Horrigan, D. J. 59-Life Sci, NEC

NAG 5-24 State Univ of New York - Albany 3758
 The structural and tectonic evolution of the north Anotoleon fault
Period Obligations
 03/15/80-09/30/82 FY82: TOTAL: \$140,000
Prin. Invest. NASA Tech. Officer CASE Category
 Dewey, J. F. GSFC/Kouns, C. W. 32-Geological Sci
 Burke, K. C.

NAS 9-16331 State Univ of New York - Albany 3765
 Study errors applying NOAA six and eight data introduced by applying NOAA 6 and NOAA 8 AVHRR data as an estimator of vegetative indices
Period Obligations
 02/01/81-01/31/82 FY82: TOTAL: \$48,450
Prin. Invest. NASA Tech. Officer CASE Category
 Duggin, M. J. JSC/Whitehead, V. 31-Atmos Sci

NAG 5-155 State Univ of New York - Albany 3759
 Neotectonics of the Northern Caribbean plate boundary zone
Period Obligations
 04/01/81-09/30/82 FY82: TOTAL: \$34,874
Prin. Invest. NASA Tech. Officer CASE Category
 Burke, K. GSFC/Kouns, C. W. 32-Geological Sci
 Dewey, J. F.

NAS 9-16514 State Univ of New York - Albany 3766
 Development of procedures to exploit daily acquisition capability of NOAA-6 and AVHRR data as a vegetation condition indicator
Period Obligations
 11/01/81-10/31/82 FY82: \$40,000 TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
 Duggin, M. J. JSC/Whitehead, V. S. 55-Agriculture Sci

NAS 5-27227 State Univ of New York - Albany 3760
 Displacement strain and relative plate motion in Africa/Arabia/Anatolia/Eurasian plate system
Period Obligations
 04/28/82-04/28/83 FY82: \$49,653 TOTAL: \$49,653
Prin. Invest. NASA Tech. Officer CASE Category
 Dewey, J. F. GSFC/Mead, G. D. 32-Geological Sci

NAS 9-16604 State Univ of New York - Albany 3767
 Establish microbial control in air/water post-treatment beds
Period Obligations
 04/01/82-05/01/83 FY82: \$20,000 TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
 Janauer, G. E. JSC/Sauer, R. 54-Env Biology

NAS 8-32893 State Univ of New York - Albany 3761
 Night-time and daytime orbital survey of lightning and convective phenomena experiment support
Period Obligations
 05/03/78-03/01/83 FY82: \$25,278 TOTAL: \$65,278
Prin. Invest. NASA Tech. Officer CASE Category
 Laza, G. G. MSFC/Keller, V. W. 39-Env Sci, NEC
 MSFC/Anderson, B. J.

NASW 3333 State Univ of New York - Albany 3768
 Planetary subsurface water analyzer instrument development
Period Obligations
 10/01/79-12/15/82 FY82: TOTAL: \$181,817
Prin. Invest. NASA Tech. Officer CASE Category
 Anderson, D. M. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/Holt, J. E.

NAS 8-32947 State Univ of New York - Albany 3762
 Static tube zero G electrophoresis of human pancreatic islets of Langerhans cells
Period Obligations
 04/07/78-11/14/80 FY82: TOTAL: \$135,215
Prin. Invest. NASA Tech. Officer CASE Category
 Van Oss, C. J. MSFC/Williams, J. R. 59-Life Sci, NEC
 MSFC/Snyder, R. S.

NSG 2386 State Univ of New York - Albany 3769
 Identification of tropospheric and stratospheric air by tracer
Period Obligations
 05/01/79-12/31/82 FY82: \$2,000 TOTAL: \$87,141
Prin. Invest. NASA Tech. Officer CASE Category
 Lazrus, A. L. ARC/Margozzi, A. P. 31-Atmos Sci

NAS 8-33380 State Univ of New York - Albany 3763
 Remote observations of severe storms
Period Obligations
 04/30/79-06/30/83 FY82: \$175,101 TOTAL: \$450,057
Prin. Invest. NASA Tech. Officer CASE Category
 Orville, R. E. MSFC/Christian, H. J. 31-Atmos Sci
 MSFC/Vaughan, O. H.

NSG 3095 State Univ of New York - Albany 3770
 Fundamentals of radiation tolerance in silicon solar cells
Period Obligations
 01/26/76-07/05/82 FY82: TOTAL: \$325,000
Prin. Invest. NASA Tech. Officer CASE Category
 Corbett, J. W. LERC/Weinberg, I. 39-Env Sci, NEC
 LERC/Swartz, C. R.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NSG 7241 State Univ of New York - Albany 3771
Studies of background starlight

<i>Period</i>	<i>Obligations</i>	
07/01/76-05/31/81	FY82: TOTAL: \$79,729	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weinberg, J. L.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Bogges, N. W.	

NGT 33-188-802 State Univ of New York - Binghamton 3779
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$13,000 TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, F. T.	HQ-LB/Carter, C. H.	13-Physics

NSG 7501 State Univ of New York - Albany 3772
Radiation induced rotation of small celestial bodies

<i>Period</i>	<i>Obligations</i>	
11/15/78-08/31/81	FY82: TOTAL: \$39,612	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ratcliff, K. F.	HQ-RT/Whiting, E. E.	42-Astro Engr
	GSFC/Paddock, S. J.	

NGT 33-188-803 State Univ of New York - Binghamton 3780
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$13,000 TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goel, N. S.	HQ-LB/Carter, C. H.	49-Engr, NEC

NAG 5-145 State Univ of New York - Binghamton 3773
Effects of the oceans on polar motion

<i>Period</i>	<i>Obligations</i>	
03/01/81-06/14/83	FY82: \$35,000 TOTAL: \$62,460	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dickman, S. R.	GSFC/Welker, J. E.	32-Geological Sci

NAG 1-249 State Univ of New York - Buffalo 3781
Debugging tools in a distributed environment

<i>Period</i>	<i>Obligations</i>	
01/19/82-11/18/82	FY82: \$55,805 TOTAL: \$55,805	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wittie, L. D.	LARC/Foudriat, E. C.	22-Computer Science
	LARC/Orlando, N. E.	

NAG 5-240 State Univ of New York - Binghamton 3774
Crustal dynamics studies in the people's republic of China

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$30,000 TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, F. T.	GSFC/Welker, J. E.	32-Geological Sci

NAGW 330 State Univ of New York - Buffalo 3782
Planetary perma-frost

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$28,000 TOTAL: \$28,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, D.	HQ-EL/Boyce, J. A.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAS 2-10621 State Univ of New York - Binghamton 3775
Synchronization of primate circadian rhythms in space

<i>Period</i>	<i>Obligations</i>	
04/01/80-07/31/83	FY82: \$35,796 TOTAL: \$105,796	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sulzman, F. M.	ARC/Souza, K. A.	59-Life Sci, NEC

NAS 9-16042 State Univ of New York - Buffalo 3783
Life science flight experiment: Inflight study of cardiovascular deconditioning definition phase

<i>Period</i>	<i>Obligations</i>	
01/17/80-04/30/83	FY82: \$245,677 TOTAL: \$288,022	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Farhi, L.	JSC/Peck, E. E.	59-Life Sci, NEC

NAS 9-15975 State Univ of New York - Binghamton 3776
Neurospora experiment

<i>Period</i>	<i>Obligations</i>	
11/09/79-11/30/83	FY82: \$8,610 TOTAL: \$59,310	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sulzman, F. M.	JSC/Nolte, R. W.	51-Biological Sci
Fuller, C. A.		
Moore-ede, M. C.		

NGR 33-015-108 State Univ of New York - Buffalo 3784
Planetary curriculum and related geologic research

<i>Period</i>	<i>Obligations</i>	
06/02/70-03/31/83	FY82: \$52,868 TOTAL: \$535,168	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shapiro, I. I.	HQ-EL/Boyce, J. M.	32-Geological Sci

NGT 33-188-800 State Univ of New York - Binghamton 3777
Cardiovascular circadian rhythms

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$13,000 TOTAL: \$38,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sulzman, F. M.	HQ-LB/Carter, C. H.	51-Biological Sci

NAG 2-56 State Univ of New York - Stony Brook 3785
Two to four micron spectroscopy: Hydroxyl ions and water of hydration in interstellar grains

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/83	FY82: TOTAL: \$42,993	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Knacke, R.	ARC/Haughney, L. C.	11-Astronomy

NGT 33-188-801 State Univ of New York - Binghamton 3778
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$13,000 TOTAL: \$26,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jensen, R. A.	HQ-LB/Carter, C. H.	56-Medical Sciences

NAG 3-164 State Univ of New York - Stony Brook 3786
A microstructural study of plasma sprayed thermal barrier coatings

<i>Period</i>	<i>Obligations</i>	
03/05/81-03/03/83	FY82: \$40,000 TOTAL: \$80,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herman, H.	LERC/Miller, R. A.	47-Materials Engr

**NASA'S UNIVERSITY PROGRAM
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NAG 5-7 State Univ of New York - Stony Brook 3787
Theoretical investigation of the mechanics of strike slip faulting in an anelastic Earth

Period	Obligations	
02/01/80-01/31/81	FY82:	TOTAL: \$36,268
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Melosh, H. J.	GSFC/Cohen, S. C.	32-Geological Sci

NAGW 353 State Univ of New York - Stony Brook 3795
Measurement of concentration and variation in stratospheric chlorine oxide from a portable ground based millimeter wave system

Period	Obligations	
05/15/82-05/14/83	FY82: \$56,478	TOTAL: \$56,478
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Soloman, P. M.	HQ-EB/Chandra, S.	31-Atmos Sci
	HQ-EB/Watson, R. T.	

NAG 5-151 State Univ of New York - Stony Brook 3788
Finite element investigation of lithosphere tectonics

Period	Obligations	
03/15/81-09/14/82	FY82:	TOTAL: \$47,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Melosh, H. J.	GSFC/Welker, J.	32-Geological Sci
	GSFC/Cohen, S. C.	

NAS 1-16444 State Univ of New York - Stony Brook 3796
Science support for the Earth radiation budget experiment (ERBE)

Period	Obligations	
09/24/80-09/23/85	FY82: \$56,000	TOTAL: \$97,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cess, R. D.	LARC/Hall, J. B., Jr.	31-Atmos Sci
	LARC/Barkstrom, B. R.	

NAG 5-275 State Univ of New York - Stony Brook 3789
Solar system investigations

Period	Obligations	
10/01/82-09/30/83	FY82: \$9,500	TOTAL: \$9,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Caldwell, J.	GSFC/Kondo, Y.	11-Astronomy
Owen, T.		

NAS 1-16607 State Univ of New York - Stony Brook 3797
Study of dynamics of phytoplankton patches on Nantucket shoals

Period	Obligations	
04/06/81-04/05/82	FY82:	TOTAL: \$32,105
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, R. E.	LARC/Esaias, W. E.	33-Oceanography
Carter, H. M.	LARC/Hypes, W.	

NAG 8-388 State Univ of New York - Stony Brook 3790
Rare gases in meteorites molecular cloud complexes

Period	Obligations	
12/08/80-12/07/81	FY82:	TOTAL: \$7,569
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simon, M.	MSFC/Stone, J. F.	11-Astronomy

NAS 2-10150 State Univ of New York - Stony Brook 3798
Carrot tissue development during spaceflight

Period	Obligations	
02/01/79-08/31/80	FY82:	TOTAL: \$41,431
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Krikorian, A. D.	ARC/Souza, K. A.	51-Biological Sci
Steward, F. C.	ARC/Chetirkin, P. V.	

NAGW 25 State Univ of New York - Stony Brook 3791
Rare gases in meteorites

Period	Obligations	
02/01/80-09/30/82	FY82:	TOTAL: \$153,583
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schaeffer, O. A.	HQ-EL/Quaide, W. L.	32-Geological Sci

NAS 2-10520 State Univ of New York - Stony Brook 3799
Investigation on the effects of hypogravity on some critical cellular events in plant development

Period	Obligations	
01/17/80-03/01/82	FY82: \$1,500	TOTAL: \$31,248
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Krikorian, A. D.	ARC/Ferandin, J.	51-Biological Sci
	ARC/Sebasta, P. D.	

NAGW 50 State Univ of New York - Stony Brook 3792
Crater modification by gravity

Period	Obligations	
03/01/80-02/28/83	FY82: \$50,000	TOTAL: \$117,311
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Melosh, H. J.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NAS 5-26395 State Univ of New York - Stony Brook 3800
Energetic particle acceleration research

Period	Obligations	
12/04/80-09/05/83	FY82: \$29,987	TOTAL: \$77,604
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Forman, M. A.	GSFC/Ramaty, R.	13-Physics

NAGW 144 State Univ of New York - Stony Brook 3793
The descriptive ecology at Hydra: Toward a test core for ecological prediction

Period	Obligations	
02/15/81-12/31/82	FY82: \$8,855	TOTAL: \$54,253
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Slobodkin, L. B.	HQ-EB/Devincenzi, D. L.	54-Env Biology

NAS 8-32904 State Univ of New York - Stony Brook 3801
Scientific investigations in support of the space telescope project

Period	Obligations	
02/01/78-12/31/84	FY82:	TOTAL: \$139,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Caldwell, J. J.	MSFC/O'dell, C. R.	11-Astronomy

NAGW 160 State Univ of New York - Stony Brook 3794
Interdisciplinary studies with Voyager Jupiter data

Period	Obligations	
04/01/81-03/31/83	FY82: \$36,500	TOTAL: \$71,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Caldwell, J. J.	HQ-EL/Brinton, H. C.	13-Physics

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NCA 2-760101 State Univ of New York - Stony Brook 3802
An investigation of the effects of hot atom chemistry of minor constituents in the atmosphere of Jupiter and Saturn

<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/83	FY82: \$28,301	TOTAL: \$54,360
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Owens, T.	ARC/Chang, S.	31-Atmos Sci

NCC 3-2 State Univ of New York - Stony Brook 3803
Analytic modeling of soot formation under fuel rich conditions

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/27/83	FY82: \$49,990	TOTAL: \$159,544
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yang, C. H.	LERC/Brabbs, T. A.	12-Chemistry
Berlad, A. L.		

NCC 5-7 State Univ of New York - Stony Brook 3804
Atmospheric pollution: Development and application

<i>Period</i>	<i>Obligations</i>	
04/09/79-01/31/83	FY82: \$70,000	TOTAL: \$253,965
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hogan, J. S.	GSFC/Stewart, R. W.	31-Atmos Sci
Hameed, S.		

NCC 5-23 State Univ of New York - Stony Brook 3805
Planetary atmospheres research

<i>Period</i>	<i>Obligations</i>	
01/15/80-08/31/82	FY82:	TOTAL: \$282,167
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Owen, T.	GSFC/Hansen, J. E.	31-Atmos Sci

NGL 33-015-130 State Univ of New York - Stony Brook 3806
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/11/71-01/31/83	FY82: \$75,000	TOTAL: \$1,190,858
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lindsley, D. H.	JSC/Dietrich, J. W.	13-Physics

NGR 33-015-139 State Univ of New York - Stony Brook 3807
Quantitative spectroscopic measurements on the principal constituents in planetary atmospheres

<i>Period</i>	<i>Obligations</i>	
04/12/71-06/30/83	FY82: \$40,000	TOTAL: \$396,964
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Varanasi, P.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NGR 33-015-141 State Univ of New York - Stony Brook 3808
Spectroscopic observations of the planets

<i>Period</i>	<i>Obligations</i>	
01/26/71-01/31/83	FY82: \$39,952	TOTAL: \$377,615
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Owen, T. C.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NGR 33-015-180 State Univ of New York - Stony Brook 3809
Cosmic rays in interplanetary space

<i>Period</i>	<i>Obligations</i>	
01/07/74-06/30/82	FY82:	TOTAL: \$148,854
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Forman, M. A.	HQ-EZ/Kaluzienski, L. J.	11-Astronomy

NGT 33-015-800 State Univ of New York - Stony Brook 3810
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/82	FY82:	TOTAL: \$10,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Papike, J. J.	HQ-LC/Carter, C. H.	32-Geological Sci

NGT 33-015-801 State Univ of New York - Stony Brook 3811
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/81-07/31/83	FY82: \$13,000	TOTAL: \$21,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Berlad, A. L.	HQ-LC/Carter, C. H.	46-Mech Engr

NGT 33-015-802 State Univ of New York - Stony Brook 3812
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$13,000	TOTAL: \$13,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Feldman, G. C.	HQ-LC/Carter, C. H.	61-Biol Aspects

NSG 5250 State Univ of New York - Stony Brook 3813
Ultraviolet observations of planets, satellites and comets International Ultraviolet Explorer

<i>Period</i>	<i>Obligations</i>	
03/01/78-08/31/82	FY82: \$12,500	TOTAL: \$71,493
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Owen, T.	GSFC/Bogges, A.	11-Astronomy

NSG 7270 State Univ of New York - Stony Brook 3814
Cells, embryos and development in space

<i>Period</i>	<i>Obligations</i>	
09/01/76-10/31/82	FY82: \$75,000	TOTAL: \$417,570
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Krikorian, A. D.	HQ-EB/Halstead, T. W.	51-Biological Sci
Steward, F. C.		

NSG 7286 State Univ of New York - Stony Brook 3815
Infrared spectroscopy of Jupiter and Saturn

<i>Period</i>	<i>Obligations</i>	
09/01/76-05/31/83	FY82: \$29,724	TOTAL: \$157,648
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Knacke, R. F.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Murphy, R. E.	

NSG 7320 State Univ of New York - Stony Brook 3816
Theoretical planetary physics

<i>Period</i>	<i>Obligations</i>	
04/01/77-09/30/83	FY82: \$39,269	TOTAL: \$189,179
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Caldwell, J. J.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	

NSG 7553 State Univ of New York - Stony Brook 3817
Outer solar system nomenclature

<i>Period</i>	<i>Obligations</i>	
04/01/79-03/31/83	FY82: \$5,000	TOTAL: \$35,832
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Owen, T.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NSG 9044 State Univ of New York - Stony Brook 3818
 Petrologic and stratigraphic studies of lunar drill cores and drive tubes

<i>Period</i>	<i>Obligations</i>	
09/01/76-05/31/82	FY82: TOTAL: \$514,215	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Papike, J. J.	JSC/Dietrich, J. W.	13-Physics

NAG 1-129 Syracuse University 3825
 Aeroacoustics of a porous plug jet noise suppressor

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$48,402 TOTAL: \$91,402	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dosanjh, D.	LARC/Seiner, J. M.	41-Aero Engr
	LARC/Maestrello, L.	

NAG 2-162 State Univ of New York - Downstate Med Ctr 3819
 Mechanism and control of disuse atrophy in skeletal muscle

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$49,885 TOTAL: \$49,885	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Etlinger, J. D.	ARC/Ellis, S.	59-Life Sci, NEC

NAG 3-202 Syracuse University 3826
 Optical records of supersonic coaxial jet flows and shock structure

<i>Period</i>	<i>Obligations</i>	
07/27/81-08/31/82	FY82: TOTAL: \$20,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dosanjh, D. S.	MSFC/Stone, J. R.	41-Aero Engr

NCA 2-765001 State Univ of New York - Upstate Med Ctr 3820
 Isolation and characterization of post-hypoxic hemolytic factors in blood

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/82	FY82: TOTAL: \$42,005	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Landaw, S. A.	ARC/Leon, H. A.	56-Medical Sciences

NSG 1602 Syracuse University 3827
 Advanced programmable image sensor/processor

<i>Period</i>	<i>Obligations</i>	
03/15/79-10/14/81	FY82: TOTAL: \$106,313	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kowel, S. T.	LARC/Benz, H. F.	45-Elec Engr
Kornreich, P. E.	LARC/Breckenridge, R. A.	

NAG 5-113 State Univ of New York Col - Geneseo 3821
 Simultaneous in-eclipse ultraviolet observations of early-type eclipsing

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/82	FY82: TOTAL: \$1,120	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meisel, D. D.	GSFC/Corrigan, J. P.	11-Astronomy

NSG 1611 Syracuse University 3828
 Surface Acoustic Waves (SAW)/silicon monolithic programmable sensor/processor

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/83	FY82: \$80,967 TOTAL: \$305,339	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kowel, S. T.	LARC/Stermer, R. L., Jr.	45-Elec Engr
Kornreich, P. G.		

NAG 1-131 State Univ of New York Col - Oneonta 3822
 Transonic normal shock-laminar boundary layer interactions with suction

<i>Period</i>	<i>Obligations</i>	
01/01/81-08/31/82	FY82: \$55,000 TOTAL: \$93,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ram, R. B.	LARC/Allison, D. O.	41-Aero Engr

NAG 2-117 University of Rochester 3829
 Development of an infrared CCD for use in astronomy

<i>Period</i>	<i>Obligations</i>	
06/01/81-09/30/83	FY82: \$127,183 TOTAL: \$147,169	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Forrest, W. J.	ARC/Goebel, J. H.	11-Astronomy
Pipher, J. L.	ARC/McCreight, C. R.	
Boyd, R. W.		

NAS 5-25967 State Univ of New York Col - Oneonta 3823
 Demonstration project to evaluate the utility of operational applications of LANDSAT to county and local government agencies

<i>Period</i>	<i>Obligations</i>	
02/05/80-12/31/82	FY82: TOTAL: \$13,057	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baumann, P. R.	GSFC/Kerber, A. G.	39-Env Sci, NEC

NAG 5-46 University of Rochester 3830
 Ultraviolet observations of the continua of nebulae and their exciting stars

<i>Period</i>	<i>Obligations</i>	
05/01/81-07/31/82	FY82: TOTAL: \$28,538	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Helfer, H. L.	GSFC/Kondo, Y.	11-Astronomy

NSG 5077 State Univ of New York College - Purchase 3824
 Spectral and Monte Carlo predictability studies

<i>Period</i>	<i>Obligations</i>	
09/01/75-06/30/83	FY82: \$49,094 TOTAL: \$156,469	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tenenbaum, J.	GSFC/Halem, M.	31-Atmos Sci
Reddi, M.		

NAG 5-123 University of Rochester 3831
 Spectra of degenerate stars of known mass

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY82: TOTAL: \$13,491	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Savedoff, M. P.	GSFC/Boggess, A.	11-Astronomy
Bohlin, R. C.		
Russell, J. L.		

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NAS 9-16187 **University of Rochester** **3832**
 Biochemical assays of cultured kidney cells
Period *Obligations*
 08/01/80-06/01/81 FY82: TOTAL: \$34,992
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Barlow, G. H. JSC/Morrison, D. R. 51-Biological Sci

NSG 2198 **University of Rochester** **3833**
 Energy transfer between molecular collision systems and laser radiation fields
Period *Obligations*
 12/31/76-08/31/81 FY82: TOTAL: \$183,408
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 George, T. F. ARC/Stallcop, J. R. 13-Physics
 Deviries, P. L.

NSG 2343 **University of Rochester** **3834**
 Determination of a galactic gradient: Measurements of the fine structure lines of AR11, and S111 in galactic HII regions
Period *Obligations*
 10/01/78-10/31/82 FY82: \$30,000 TOTAL: \$108,346
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pipher, J. L. ARC/Haughney, L. C. 11-Astronomy
 Helfer, H. L.

NSG 7562 **University of Rochester** **3835**
 Basic research in sunspot dynamics
Period *Obligations*
 10/01/78-10/31/82 FY82: \$22,264 TOTAL: \$80,404
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Thomas, J. H. HQ-EZ/Chipman, E. G. 13-Physics

NSG 7454 **York College** **3836**
 Irradiation effects on surface of Moon, Mercury, asteroids and solar system bodies
Period *Obligations*
 06/01/78-11/30/81 FY82: TOTAL: \$106,251
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Spergel, M. S. HQ-LC/Pohly, J. G. 13-Physics

NORTH CAROLINA

NAG 1-70 **Duke University** **3837**
 Evaluation of computer-aided reliability estimation (CARE) III
Period *Obligations*
 06/01/80-09/30/82 FY82: TOTAL: \$64,413
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Trivedi, K. S. LARC/Bavuso, S. J. 29-Math/Computer, NEC
 Geist, R. M. LARC/Lupton, A. O.

NAG 1-165 **Duke University** **3838**
 Study of tool for prediction and evaluation of performance of application software
Period *Obligations*
 04/01/81-09/30/82 FY82: \$20,859 TOTAL: \$80,386
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, C. U. LARC/Salley, G. C. 22-Computer Science

NAG 1-218 **Duke University** **3839**
 Microelectronic hardware for selected engineering analysis functions
Period *Obligations*
 10/01/81-11/30/82 FY82: \$65,975 TOTAL: \$65,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Loendorf, D. D. LARC/Fulton, R. E. 29-Math/Computer, NEC
 Patrick, M. L. LARC/Peebles, S. W.

NAG 2-128 **Duke University** **3840**
 Cryogenic experiments on fluid helium under low gravity
Period *Obligations*
 08/01/81-08/31/82 FY82: \$10,193 TOTAL: \$29,893
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meyer, H. LARC/Brooks, W. F. 13-Physics

NAGW 189 **Duke University** **3841**
 Millimeter and submillimeter wave spectroscopic laboratory studies of interstellar molecule
Period *Obligations*
 06/01/81-05/31/83 FY82: \$55,000 TOTAL: \$104,969
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Herbst, E. HQ-EZ/Bogges, N. W. 11-Astronomy
 HQ-EZ/Weiler, E. J.

NSG 1647 **Duke University** **3842**
 Improvement of nonlinear transient analysis efficiency
Period *Obligations*
 09/01/79-09/30/81 FY82: TOTAL: \$42,189
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Melosh, R. J. LARC/Hayduk, R. J. 49-Engr, NEC
 LARC/Thomson, R. G.

NSG 3157 **Duke University** **3843**
 Design feasibility of high-power lightweight DC-to-DC converters for space power applications
Period *Obligations*
 07/01/77-10/31/82 FY82: TOTAL: \$384,660
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wilson, T. G. LERC/Kolecki, J. C. 45-Elec Engr
 LERC/Myers, I. T.

NSG 3160 **Duke University** **3844**
 Acceleration of convergence
Period *Obligations*
 06/01/77-09/29/83 FY82: \$24,139 TOTAL: \$89,658
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, D. A. LERC/Ford, W. E. 21-Mathematics

NSG 7540 **Duke University** **3845**
 Millimeter and submillimeter spectroscopy of molecules of atmospheric importance
Period *Obligations*
 03/01/79-02/28/82 FY82: \$58,000 TOTAL: \$203,843
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Delucia, F. C. HQ-EB/Watson, R. T. 31-Atmos Sci
 HQ-EB/Chan, K. R.

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NAG 1-82 North Carolina A&T State University 3848
System compaction and integration-lasers

<i>Period</i>	<i>Obligations</i>	
07/14/80-06/30/82	FY82: TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Yu, C.	LARC/Hoell, J. M.	19-Phys Sci, NEC
	LARC/Brockman, P.	

NAG 1-187 North Carolina Central University 3853
Laser heterodyne spectroscopy of stratospheric gases

<i>Period</i>	<i>Obligations</i>	
06/01/81-09/30/83	FY82: \$18,000 TOTAL: \$84,320	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, C. R.	LARC/Kendall, B. M.	13-Physics
	Dutta, J. M.	

NCA 2-545201 North Carolina A&T State University 3847
North Carolina A and T student Space Shuttle program/design phase

<i>Period</i>	<i>Obligations</i>	
06/01/82-07/31/83	FY82: \$24,000 TOTAL: \$24,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ahrens, S. T.	ARC/Lum, H.	51-Biological Sci

NSG 5120 North Carolina Central University 3854
Optically pumped submillimeter waves and applications

<i>Period</i>	<i>Obligations</i>	
06/07/76-08/31/81	FY82: TOTAL: \$196,821	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, C. R.	GSFC/McAvoy, N.	13-Physics
	Dutta, J. M.	GSFC/Lawandy, N.

NCC 1-37 North Carolina A&T State University 3848
Dynamic analysis of the solar electric propulsion (SEP) solar array and Space Shuttle

<i>Period</i>	<i>Obligations</i>	
09/01/80-09/30/81	FY82: TOTAL: \$22,445	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Abu-saba, E. G.	LARC/Montgomery, R. C.	44-Civil Engr

NAG 1-20 North Carolina State Univ. - Raleigh 3855
Studies of image analysis

<i>Period</i>	<i>Obligations</i>	
02/01/80-12/31/82	FY82: \$88,000 TOTAL: \$202,598	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Snyder, W. E.	LARC/Hudson, C.	45-Elec Engr
	Rajala, S. A.	

NGT 34-012-800 North Carolina A&T State University 3849
Summer faculty fellowship program in engineering systems design

<i>Period</i>	<i>Obligations</i>	
01/01/80-12/31/81	FY82: TOTAL: \$200,843	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Abu-saba, E. G.	HQ-LB/Carter, C. H.	49-Engr, NEC

NAG 1-103 North Carolina State Univ. - Raleigh 3856
Shape preserving approximation with application to computer aided geometric design

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/82	FY82: \$11,424 TOTAL: \$58,764	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McAllister, D. F.	LARC/Speray, D. E.	29-Math/Computer, NEC
	LARC/Park, S. K.	

NSG 1390 North Carolina A&T State University 3850
Material growth and characterization of III-V compounds for solid state devices

<i>Period</i>	<i>Obligations</i>	
02/01/77-09/30/82	FY82: TOTAL: \$750,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stefanakos, E.	LARC/Magee, C. J.	45-Elec Engr
	Abul-eadi, A.	LARC/Hendricks, H. D.

NAG 1-194 North Carolina State Univ. - Raleigh 3857
Investigation of fault-handling capabilities and limitations of fault-tolerant computer architecture

<i>Period</i>	<i>Obligations</i>	
06/01/81-08/31/82	FY82: TOTAL: \$37,184	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gault, J. W.	LARC/Lupton, A. O.	45-Elec Engr
	LARC/Palumbo, D. L.	

NSG 1516 North Carolina A&T State University 3851
Patterns of residual stresses within complex welded steel structures

<i>Period</i>	<i>Obligations</i>	
04/15/78-01/14/83	FY82: TOTAL: \$89,043	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Botros, B. M.	LARC/Buckley, J. D.	47-Materials Engr

NAG 1-244 North Carolina State Univ. - Raleigh 3858
Numerical solutions of the complete Navier Stokes equations

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/83	FY82: \$78,930 TOTAL: \$78,930	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hassan, H. A.	LARC/Harris, J. E.	41-Aero Engr
	Dejarnette, F. R.	LARC/Rudy, D. H.
	Walters, R. W.	

NSG 1631 North Carolina A&T State University 3852
Design and testing of small composite specimens

<i>Period</i>	<i>Obligations</i>	
08/17/79-06/30/81	FY82: TOTAL: \$34,933	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sharma, A. V.	LARC/Rhodes, M. D.	44-Civil Engr
	LARC/Mikulas, M. M.	

NAG 1-285 North Carolina State Univ. - Raleigh 3859
Indium-arsenic-antimony-bismuth, a potential material system for far infrared detection

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$49,312 TOTAL: \$49,312	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bedair, S. M.	LARC/Miller, W. E.	13-Physics
	Hauser, J. R.	LARC/Hendricks, H. D.
	Schreiner, A. F.	

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NAG 3-89 North Carolina State Univ. - Raleigh 3860
Boundary layer studies of model and full scale VTOL inlets in the diffusion limited flow regions

<i>Period</i>	<i>Obligations</i>	
09/01/80-06/15/82	FY82: \$6,146	TOTAL: \$30,192
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boles, M. A.	LERC/Hwang, D.	41-Aero Engr

NAS 5-26510 North Carolina State Univ. - Raleigh 3867
Photometric observations supporting sounding rockets 33.019 and 33.020

<i>Period</i>	<i>Obligations</i>	
03/06/81-12/09/81	FY82:	TOTAL: \$5,530
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Manning, E. R.	GSFC/Heppner, J. P.	31-Atmos Sci

NAG 3-189 North Carolina State Univ. - Raleigh 3861
The effects of supersonic jet screech tone reduction on broadband shock associated noise

<i>Period</i>	<i>Obligations</i>	
09/01/81-02/28/83	FY82:	TOTAL: \$53,604
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nagel, R. T.	LERC/Stone, J. R.	41-Aero Engr

NAS 6-3018 North Carolina State Univ. - Raleigh 3868
Perform statistical modelling of surface water movements using radar altimeter data

<i>Period</i>	<i>Obligations</i>	
07/01/79-07/31/83	FY82: \$24,987	TOTAL: \$85,959
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tung, C.	GSFC/Huang, N. E.	33-Oceanography
	WFC/Long, S. R.	

NAG 3-229 North Carolina State Univ. - Raleigh 3862
Theoretical study of V/STOL deflected thrust nozzles

<i>Period</i>	<i>Obligations</i>	
11/30/81-02/28/83	FY82: \$38,095	TOTAL: \$38,095
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boles, M. A.	LERC/Burstadt, P. L.	41-Aero Engr

NCC 1-22 North Carolina State Univ. - Raleigh 3869
Computational fluid mechanics

<i>Period</i>	<i>Obligations</i>	
06/15/79-09/14/84	FY82: \$135,000	TOTAL: \$469,924
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hassan, H. A.	LARC/South, J. C., Jr.	41-Aero Engr
Dejarnette, F. R.	LARC/Foughner, J. T., Jr.	

NAG 3-306 North Carolina State Univ. - Raleigh 3863
Mathematical simulation of the Fe/Cr flow redux battery

<i>Period</i>	<i>Obligations</i>	
06/15/82-11/15/82	FY82: \$5,180	TOTAL: \$5,180
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fedkiw, P. S.	LERC/Reid, M. A.	43-Chem Engr
	LERC/Hagedorn, N. H.	

NCC 1-35 North Carolina State Univ. - Raleigh 3870
Development of an aerodynamic heating computer program for computer-aided design systems

<i>Period</i>	<i>Obligations</i>	
02/15/80-08/14/81	FY82:	TOTAL: \$30,882
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dejarnette, F. R.	LARC/Wurster, K. E.	41-Aero Engr
	LARC/Wilhite, A. W.	

NAG 3-343 North Carolina State Univ. - Raleigh 3864
Theoretical evaluation of engine inlet drooping cowl lip designs for supersonic V/STOL aircraft

<i>Period</i>	<i>Obligations</i>	
01/01/83-06/30/84	FY82: \$50,114	TOTAL: \$50,114
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boles, M. A.	LERC/Hwang, D. P.	41-Aero Engr

NCC 1-46 North Carolina State Univ. - Raleigh 3871
Investigation of the aerodynamic characteristics leading edge vortex flaps

<i>Period</i>	<i>Obligations</i>	
09/18/80-01/31/83	FY82: \$35,689	TOTAL: \$68,964
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dejarnette, F. R.	LARC/Schoonover, W. E., Jr.	41-Aero Engr

NAGW 367 North Carolina State Univ. - Raleigh 3865
Geographic variation in the relationships of temperatures

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$50,690	TOTAL: \$50,690
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kamykowski, D.	HQ-EE/Carder, K. L.	33-Oceanography
	HQ-EE/Wilson, W. S.	

NCC 1-49 North Carolina State Univ. - Raleigh 3872
Development of a surface fitting program for computer-aided design systems

<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/83	FY82: \$43,510	TOTAL: \$78,289
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Perkins, J. N.	LARC/Wilhite, A. W.	21-Mathematics
	LARC/Wurster, K. E.	

NAS 5-26157 North Carolina State Univ. - Raleigh 3866
Magnetic fields monitor satellite science investigation data and aeromagnetic data in the Eastern Piedmont of the United States

<i>Period</i>	<i>Obligations</i>	
05/01/80-12/01/82	FY82:	TOTAL: \$37,742
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Won, I. J.	GSFC/Oseroff, H.	32-Geological Sci

NCC 1-54 North Carolina State Univ. - Raleigh 3873
Kinetics of direct solar pumped lasers

<i>Period</i>	<i>Obligations</i>	
07/01/81-12/31/82	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hassan, H. A.	LARC/Meador, W. E.	13-Physics
	LARC/Conway, E. J.	

**NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)**

NCC 2-101 North Carolina State Univ. - Raleigh 3874
Plant growth in controlled environments in response to characteristics of nutrient solutions

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$45,397	TOTAL: \$90,154
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Raper, C. D.	ARC/Zill, L. P.	55-Agriculture Sci

NSG 1058 North Carolina State Univ. - Raleigh 3875
Analyses of nuclear induced plasmas by means of kinetic theory

<i>Period</i>	<i>Obligations</i>	
07/01/74-06/30/81	FY82:	TOTAL: \$181,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hassan, H. A.	LARC/Meador, W. E. LARC/Hohl, F.	13-Physics

NSG 1355 North Carolina State Univ. - Raleigh 3876
A study of real-time computer graphic display technology for aeronautical applications

<i>Period</i>	<i>Obligations</i>	
01/01/77-09/30/82	FY82:	TOTAL: \$117,023
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rajala, S. A.	LARC/Batson, V. M. LARC/Hatfield, J. J.	45-Elec Engr

NSG 1562 North Carolina State Univ. - Raleigh 3877
Study of the effects of high energy radiation on the mechanical properties of graphite-fiber reinforced epoxy resins

<i>Period</i>	<i>Obligations</i>	
10/01/78-12/31/82	FY82: \$70,248	TOTAL: \$211,539
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fornes, R. E. Memory, J. D.	LARC/Long, E. R., Jr.	13-Physics

NSG 1584 North Carolina State Univ. - Raleigh 3878
Optimum nacelle shapes and flow port locations for minimum drag and effective engine cooling for general aviation aircraft

<i>Period</i>	<i>Obligations</i>	
01/01/79-05/15/82	FY82:	TOTAL: \$166,358
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smetana, F. O.	LARC/Holbrook, G. T. LARC/Holmes, B. J.	41-Aero Engr

NSG 1588 North Carolina State Univ. - Raleigh 3879
Large reflector antenna analysis research

<i>Period</i>	<i>Obligations</i>	
01/01/79-01/31/83	FY82: \$71,676	TOTAL: \$189,234
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kauffman, J. F.	LARC/Bailey, M. C.	45-Elec Engr

NAG 1-181 University of North Carolina - Chapel Hill 3880
Biogeochemistry of methane production in wetland soils

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$14,000	TOTAL: \$30,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martens, C. S.	LARC/Harriss, R. C. LARC/Sebacher, D. I.	39-Env Sci, NEC

NAG 2-181 University of North Carolina - Chapel Hill 3881
Biochemical changes in bone in a model of weightlessness

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$52,000	TOTAL: \$52,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mgchanic, G.	ARC/Young, D.	51-Biological Sci

NGT 34-003-800 University of North Carolina - Chapel Hill 3882
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/17/82-05/16/83	FY82: \$21,000	TOTAL: \$21,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martens, C. S.	HQ-LB/Carter, C. H.	39-Env Sci, NEC

NAGW 96 Wake Forest University 3883
A study of the mechanism of thermomorphogenesis in plants

<i>Period</i>	<i>Obligations</i>	
08/01/80-11/01/83	FY82: \$60,000	TOTAL: \$152,194
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jaffe, M. J.	HQ-EB/Halstead, T. W.	51-Biological Sci

NAS 2-10523 Wake Forest University 3884
Life science experiment ARC 781-127, correlation macro and microcirculatory alterations during weightlessness

<i>Period</i>	<i>Obligations</i>	
01/17/80-09/30/81	FY82: \$80,745	TOTAL: \$90,745
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hutchins, P. M.	ARC/Ferandin, J. ARC/Lee, R. C.	51-Biological Sci

NCC 1-55 Wake Forest University 3885
Quantum chemical study of methane oxidation species

<i>Period</i>	<i>Obligations</i>	
06/04/81-06/03/84	FY82:	TOTAL: \$46,112
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jackels, C. F.	LARC/Phillips, D. H. LARC/Rogowski, R. S.	12-Chemistry

NORTH DAKOTA

NAGW 151 University of North Dakota 3886
Photogeologic mapping of the Galilean satellite Io

<i>Period</i>	<i>Obligations</i>	
12/15/80-03/15/82	FY82: \$9,930	TOTAL: \$22,503
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Karner, F. R.	HQ-EL/Boyce, J. L.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
OHIO**

OHIO

NAG 5-259 Bowling Green State University 3887
Time variations of emission lines in sefert galaxies

<i>Period</i>	<i>Obligations</i>	
03/01/83-08/31/84	FY82: \$1,000	TOTAL: \$1,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gregory, S. A.	GSFC/Kondo, Y.	11-Astronomy
Ptak, R. L.		
Stoner, R. E.		

NAG 2-82 Case Western Reserve University 3888
Stabilizability and eigenvalue structure for linear systems representing the dynamics of twin-lift helicopter system

<i>Period</i>	<i>Obligations</i>	
01/01/81-10/31/82	FY82: \$25,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martin, C.	ARC/Meyer, G.	49-Engr, NEC

NAG 3-2 Case Western Reserve University 3889
Improved and efficient laser anemometers

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/28/83	FY82: \$129,971	TOTAL: \$246,818
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Edwards, R. V.	LERC/Seasholtz, R. G.	49-Engr, NEC

NAG 3-24 Case Western Reserve University 3890
Diamond II a resistivity, dielectric constant, and tangent delta from 10ghz-100ghz as well as thermal conductivity from OC to 500c

<i>Period</i>	<i>Obligations</i>	
01/07/80-01/04/83	FY82: \$59,244	TOTAL: \$169,244
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hazony, D.	LERC/Kosmahl, H. G.	13-Physics
	LERC/Kavanagh, F.	

NAG 3-30 Case Western Reserve University 3891
Influence of cobalt on the microstructure and mechanical properties of mar M-247

<i>Period</i>	<i>Obligations</i>	
01/28/80-01/26/84	FY82: \$27,354	TOTAL: \$87,345
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ebert, L. J.	LERC/Gray, H. R.	47-Materials Engr

NAG 3-39 Case Western Reserve University 3892
Constitutive equations for analysis and design of turbine engine hot section components

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/30/83	FY82: \$30,094	TOTAL: \$125,004
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Manson, S. S.	LERC/Thompson, R. L.	47-Materials Engr

NAG 3-46 Case Western Reserve University 3893
Crack initiation and early propagation under thermo-mechanical loading

<i>Period</i>	<i>Obligations</i>	
03/15/80-04/29/83	FY82: \$52,943	TOTAL: \$150,066
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Manson, S. S.	LERC/Halford, G. R.	47-Materials Engr
	LERC/Hirschberg, M. H.	

NAG 3-58 Case Western Reserve University 3894
Evolution and adherence of oxide films formed on nial and nical alloys

<i>Period</i>	<i>Obligations</i>	
06/15/80-06/14/83	FY82:	TOTAL: \$59,940
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ebert, L. J.	LERC/Smialek, J. L.	47-Materials Engr

NAG 3-61 Case Western Reserve University 3895
Model development for shock wave boundary layer interaction experiment

<i>Period</i>	<i>Obligations</i>	
04/24/80-04/21/83	FY82: \$28,980	TOTAL: \$86,680
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greber, I.	LERC/Hingst, W. R.	41-Aero Engr

NAG 3-66 Case Western Reserve University 3896
Electrochemical fluorination of polymeric materials for high energy density aqueous and non-aqueous battery and fuel cell

<i>Period</i>	<i>Obligations</i>	
05/28/80-05/26/82	FY82:	TOTAL: \$137,322
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liu, C. C.	LERC/Hsu, L. C.	43-Chem Engr
	LERC/Sanabria, O. D.	

NAG 3-80 Case Western Reserve University 3897
Planar multijunction high voltage solar cells

<i>Period</i>	<i>Obligations</i>	
06/02/80-09/29/83	FY82: \$45,000	TOTAL: \$128,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kapoor, V. J.	LERC/Evans, J. C.	13-Physics
Ko, W. H.		

NAG 3-97 Case Western Reserve University 3898
Mass and heat transfer characteristics of melt metals

<i>Period</i>	<i>Obligations</i>	
09/08/80-09/05/83	FY82: \$50,395	TOTAL: \$144,575
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dybbas, A.	LERC/Liebert, C. H.	46-Mech Engr

NAG 3-98 Case Western Reserve University 3899
Application of photoacoustic techniques to the study of jet fuel residue

<i>Period</i>	<i>Obligations</i>	
09/22/80-12/20/82	FY82:	TOTAL: \$107,986
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Claspy, P. C.	LERC/Seng, G. T.	12-Chemistry

NAG 3-101 Case Western Reserve University 3900
Computer program to minimize three-dimensional flight time tracks

<i>Period</i>	<i>Obligations</i>	
09/15/80-08/12/81	FY82:	TOTAL: \$14,430
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parke, F. I.	LERC/Steinberg, R.	29-Math/Cmputer, NEC

NASA'S UNIVERSITY PROGRAM

OHIO (Continued)

NAG 3-102 Case Western Reserve University 3901
 Experiments on viscous flows on supersonic streams in XI Lewis
 supersonic wind tunnel
Period *Obligations*
 09/15/80-09/15/83 FY82: \$30,200 TOTAL: \$60,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Greber, I. LERC/Hingst, W. R. 41-Aero Engr

NAG 3-187 Case Western Reserve University 3908
 Super Schottky mixer and detectors in beam lead technology
Period *Obligations*
 06/01/81-01/31/83 FY82: TOTAL: \$49,516
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pyee, M. M. LERC/Haugland, E. H. 45-Elec Engr
 Thompson, E. T. LERC/Connolly, D. J.

NAG 3-115 Case Western Reserve University 3902
 Effect of morphological and mechanical parameters of ion
 sputters materials on the gingival seal of an oral implant model
Period *Obligations*
 11/01/80-03/31/83 FY82: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hottel, T. LERC/Kerslake, W. R.
 56-Medical Sciences

NAG 3-191 Case Western Reserve University 3909
 Growth of diamond-like carbon films for electronic application
Period *Obligations*
 06/22/81-01/24/83 FY82: \$49,475 TOTAL: \$123,707
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Angus, J. C. LERC/Domitz, S. 43-Chem Engr

NAG 3-217 Case Western Reserve University 3910
 Vapor phase diamond growth technology: Rheed analysis
Period *Obligations*
 10/15/81-10/14/82 FY82: TOTAL: \$25,912
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mann, J. LARC/Kolecki, J. C. 13-Physics
 Guda, L. LARC/Banks, B. A.

NAG 3-126 Case Western Reserve University 3903
 Thermal degradation of pressure modulator radiometer poly-
 imide
Period *Obligations*
 01/15/81-06/14/82 FY82: TOTAL: \$40,615
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ishida, H. LERC/Lauver, R. 12-Chemistry
 Koenig, J. L.

NAG 3-218 Case Western Reserve University 3911
 Qualitative and quantitative study of fatigue damage in nickel
Period *Obligations*
 12/05/81-12/04/82 FY82: \$60,120 TOTAL: \$60,120
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Welsch, G. E. LERC/Miner, R. V. 47-Materials Engr
 McGervey, J. D.

NAG 3-140 Case Western Reserve University 3904
 Interactive calculation procedures for mixed compression inlets
Period *Obligations*
 11/27/80-11/07/81 FY82: TOTAL: \$56,520
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Reshotko, E. LERC/Bishop, A. R. 41-Aero Engr

NAG 3-219 Case Western Reserve University 3912
 Electrochemical studies of redox systems for energy storage
Period *Obligations*
 12/05/81-12/04/82 FY82: \$80,000 TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Yeager, E. LERC/Reid, M. A. 12-Chemistry
 Scherson, D. A. LERC/Thaller, L. H.
 Tryk, D. A.

NAG 3-158 Case Western Reserve University 3905
 Relating NMR parameters to polymer mechanical properties
Period *Obligations*
 02/25/81-02/23/83 FY82: \$74,814 TOTAL: \$114,642
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ritchey, W. M. LERC/Lauver, R. 12-Chemistry

NAG 3-223 Case Western Reserve University 3913
 Fatigue crack and associated damage propagation a fundamental
 approach
Period *Obligations*
 11/05/81-11/04/82 FY82: \$50,013 TOTAL: \$50,013
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Chudnovsky, A. LERC/Gross, B. 47-Materials Engr
 LERC/Orange, T.

NAG 3-163 Case Western Reserve University 3906
 Developments of pressure modulator radiometer monomers and
 polymers: Improving performance of pressure modulator
 radiometer systems
Period *Obligations*
 03/03/81-03/01/83 FY82: \$48,145 TOTAL: \$83,105
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ritchey, W. M. LERC/Serafini, T. T. 47-Materials Engr
 Sukenik, C. N.

NAG 3-224 Case Western Reserve University 3914
 Structure property relationships in zirconia-ytria thermal barrier
 coatings
Period *Obligations*
 10/25/81-10/23/83 FY82: \$75,841 TOTAL: \$75,841
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mitchell, T. E. LERC/Miller, R. A. 47-Materials Engr

NAG 3-171 Case Western Reserve University 3907
 Research on jet entrainment
Period *Obligations*
 04/04/81-08/31/82 FY82: TOTAL: \$47,390
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Greber, I. LERC/Riddlerough, S. M. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-225 Case Western Reserve University 3915
Study of fast wave electron beam devices for millimeter wave generation

<i>Period</i>	<i>Obligations</i>	
10/20/81-10/18/83	FY82: \$39,993	TOTAL: \$72,478
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ferendeci, A. M.	LERC/Heighway, J. E.	45-Elec Engr
	LERC/Dayton, J. A.	

NAG 3-253 Case Western Reserve University 3922
Rapid reliability assessment and verification of electronic flight systems hardware using computerized reliability models

<i>Period</i>	<i>Obligations</i>	
01/25/82-01/24/83	FY82: \$60,005	TOTAL: \$60,005
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schultz, W. L.	LERC/Lalli, V. R.	45-Elec Engr
	LERC/Delaney, A. P.	

NAG 3-230 Case Western Reserve University 3916
Boundary layer transition in a disturbed environment

<i>Period</i>	<i>Obligations</i>	
12/05/81-12/04/82	FY82: \$48,521	TOTAL: \$48,521
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reshotko, E.	LERC/Gaugler, R. E.	46-Mech Engr
	LERC/Graham, R. W.	

NAG 3-267 Case Western Reserve University 3923
Theory of carrier mobility in modulated doped GaAs AIXGa-X as superlattice structures

<i>Period</i>	<i>Obligations</i>	
03/08/82-03/07/83	FY82: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Segall, B.	LERC/Haugland, E. J.	13-Physics
	LERC/Connolly, D. J.	

NAG 3-234 Case Western Reserve University 3917
Synthesis of soluble conducting polymers with reversible oxidation/reduction behavior

<i>Period</i>	<i>Obligations</i>	
11/30/81-11/29/82	FY82: \$59,995	TOTAL: \$59,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Litt, M.	LERC/Abbey, K. M.	12-Chemistry
	LERC/Sheibley, D. W.	

NAG 3-268 Case Western Reserve University 3924
Effect of reduction of strategic columbium addition in 718 alloy on the structure and properties

<i>Period</i>	<i>Obligations</i>	
03/20/82-03/19/83	FY82: \$44,655	TOTAL: \$44,655
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wallace, J. F.	LERC/Dreshfield, R. L.	47-Materials Engr

NAG 3-235 Case Western Reserve University 3918
Behavior of combined dielectric metal in systems in a charge particle environment

<i>Period</i>	<i>Obligations</i>	
12/05/81-12/04/82	FY82: \$63,752	TOTAL: \$63,752
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gordon, W. L.	LERC/Purvis, C. K.	12-Chemistry
Hoffman, R. W.	LERC/Stevens, N. J.	

NAG 3-270 Case Western Reserve University 3925
Interactive flowfield calculation in turbomachinery

<i>Period</i>	<i>Obligations</i>	
03/15/82-03/14/83	FY82: \$43,000	TOTAL: \$43,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reshotko, E.	LERC/Braun, W. H.	41-Aero Engr

NAG 3-243 Case Western Reserve University 3919
Surface-tension driven convection phenomena

<i>Period</i>	<i>Obligations</i>	
11/23/81-06/29/82	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ostrach, S.	LERC/Sarsfield, L. P.	49-Engr, NEC
Kamotani, Y.		

NAG 3-279 Case Western Reserve University 3926
Development of materials for resisto jet

<i>Period</i>	<i>Obligations</i>	
04/21/82-04/20/83	FY82: \$65,933	TOTAL: \$65,933
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hehemann, R. F.	LERC/Mirtich, N. J.	47-Materials Engr
Welsch, G.	LERC/Byers, D. C.	
Halloran, J. W.		

NAG 3-247 Case Western Reserve University 3920
Graduate research fellowship program

<i>Period</i>	<i>Obligations</i>	
12/21/81-12/20/84	FY82: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Edwards, R. V.	LERC/Seasholtz, R. G.	49-Engr, NEC

NAG 3-287 Case Western Reserve University 3927
Bonding of ceramic seals to structural ceramics

<i>Period</i>	<i>Obligations</i>	
05/25/82-05/24/83	FY82: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Halloran, J. W.	LERC/Kiraly, L. J.	47-Materials Engr
Heuer, A. H.	LERC/Kascak, A. F.	

NAG 3-251 Case Western Reserve University 3921
Dilution jet experiments in compact combustor configurations

<i>Period</i>	<i>Obligations</i>	
01/05/82-01/04/83	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greber, I.	LERC/Riddlebaugh, S. M.	41-Aero Engr

NAG 3-288 Case Western Reserve University 3928
Millimeter wave transmission systems and related devices

<i>Period</i>	<i>Obligations</i>	
05/28/82-05/27/83	FY82: \$18,448	TOTAL: \$18,448
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Collins, R. E.	LERC/Downey, A. N.	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-290 Case Western Reserve University 3929
 Combustor flame flash backs
Period Obligations
 05/25/82-05/24/83 FY82: \$42,500 TOTAL: \$42,500
Prin. Invest. NASA Tech. Officer CASE Category
 T'ien, T. S. LERC/Anderson, D. N. 46-Mech Engr

NAS 3-21965 Case Western Reserve University 3936
 Vapor phase diamond growth technology
Period Obligations
 09/21/79-10/20/80 FY82: TOTAL: \$17,335
Prin. Invest. NASA Tech. Officer CASE Category
 Angus, J. LERC/Riley, T. J. 12-Chemistry
 Mann, J. LERC/Myers, I. T.

NAG 3-291 Case Western Reserve University 3930
 Mutual coupling effects in antenna arrays
Period Obligations
 05/15/82-12/31/82 FY82: \$28,593 TOTAL: \$28,593
Prin. Invest. NASA Tech. Officer CASE Category
 Collins, R. E. LERC/Smetana, J. 45-Elec Engr

NAS 3-22342 Case Western Reserve University 3937
 Design, fabricate and test prime focus feeds for parabolic Earth station antennas for the 12 GHz broadcast satellite service
Period Obligations
 04/01/80-09/30/82 FY82: TOTAL: \$51,023
Prin. Invest. NASA Tech. Officer CASE Category
 Collins, R. E. LERC/Smetana, J. 19-Phys Sci, NEC

NAG 3-300 Case Western Reserve University 3931
 Study of surface tension driven convection under reduced gravity
Period Obligations
 06/01/82-12/01/82 FY82: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
 Ostrach, S. LERC/Sapsfield, L. P. 49-Engr, NEC
 Kamotani, Y.

NAS 3-22443 Case Western Reserve University 3938
 Center of excellence for biomedical application of ion thruster technology
Period Obligations
 07/17/80-03/02/83 FY82: \$140,000 TOTAL: \$288,414
Prin. Invest. NASA Tech. Officer CASE Category
 Gibbons, D. F. LERC/Weigand, A. J. 56-Medical Sciences
 LERC/Banks, B. A.

NAG 3-301 Case Western Reserve University 3932
 Formation of SiC by carbon ion implantation in silicon
Period Obligations
 06/10/82-10/09/83 FY82: \$55,000 TOTAL: \$55,000
Prin. Invest. NASA Tech. Officer CASE Category
 Fung, C. D. LERC/Powell, J. A. 33-Oceanography

NAS 3-22549 Case Western Reserve University 3939
 Developing a technique for translating the electron diffraction image of a phosphor screen to computer language
Period Obligations
 11/14/80-03/01/83 FY82: TOTAL: \$21,634
Prin. Invest. NASA Tech. Officer CASE Category
 Mann, J. A. LERC/Riley, T. J. 49-Engr, NEC

NAG 3-324 Case Western Reserve University 3933
 Analysis of alumina scales on nicrail alloy
Period Obligations
 09/01/82-08/31/83 FY82: \$41,180 TOTAL: \$41,180
Prin. Invest. NASA Tech. Officer CASE Category
 Halloran, J. W. LERC/Smialek, J. L. 47-Materials Engr
 Cooper, A. P.

NAS 8-33015 Case Western Reserve University 3940
 Surface tension driven convection phenomena experiment
Period Obligations
 05/23/78-08/07/81 FY82: TOTAL: \$561,643
Prin. Invest. NASA Tech. Officer CASE Category
 Ostrach, S. MSFC/Schaefer, D. A. 13-Physics
 Mann, J. A., Jr. MSFC/Zwiener, J. M.

NAG 5-179 Case Western Reserve University 3934
 Luminous, extended atmosphere stars in the Magellanic clouds
Period Obligations
 05/15/81-11/30/82 FY82: \$7,500 TOTAL: \$12,500
Prin. Invest. NASA Tech. Officer CASE Category
 Shore, S. N. GSFC/Kondo, Y. 11-Astronomy
 Sanduleak, N.
 Barker, P. K.

NASW 3623 Case Western Reserve University 3941
 Development of high resolution gamma ray telescope
Period Obligations
 06/01/82-05/31/83 FY82: \$109,386 TOTAL: \$109,386
Prin. Invest. NASA Tech. Officer CASE Category
 Frye, G. M. HQ-EZ/Kaluzienski, L. J. 11-Astronomy
 Jenkins, T. L. HQ-EZ/Opp, A. G.

NAGW 83 Case Western Reserve University 3935
 Prenatal and postnatal development and functional differentiation of the vestibular system in normal, rotated and centrifuged rats and mice
Period Obligations
 07/01/80-11/30/83 FY82: \$51,649 TOTAL: \$122,845
Prin. Invest. NASA Tech. Officer CASE Category
 Keefe, J. R. HQ-EB/Halstead, T. W. 51-Biological Sci

NCC 3-4 Case Western Reserve University 3942
 Interactive flow-field calculations in turbomachinery
Period Obligations
 08/01/79-01/30/82 FY82: TOTAL: \$75,804
Prin. Invest. NASA Tech. Officer CASE Category
 Reshotko, E. LERC/Sockol, P. M. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NCC 3-8 Case Western Reserve University 3943
Microprocessor control of a wind turbine

<i>Period</i>	<i>Obligations</i>	
04/15/80-12/31/82	FY82: TOTAL: \$230,050	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dybbs, A.	LERC/Finnegan, P. M.	49-Engr, NEC
Bradshaw, F. T.	LERC/Nyland, T. W.	

NSG 3197 Case Western Reserve University 3950
Secondary electron emission yield

<i>Period</i>	<i>Obligations</i>	
07/01/78-09/30/83	FY82: \$62,363 TOTAL: \$260,560	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gordan, W. L.	LERC/Purvis, C. K.	13-Physics
Hoffman, R. W.	LERC/Stevens, N. J.	

NCC 3-18 Case Western Reserve University 3944
Monolithic microwave integrated circuits

<i>Period</i>	<i>Obligations</i>	
05/17/82-08/16/83	FY82: \$120,000 TOTAL: \$120,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kapoor, V. J.	LERC/Liu, D. C.	19-Phys Sci, NEC

NSG 3207 Case Western Reserve University 3951
Shaded computer graphic techniques for visualizing and interpreting analytic fluid flow models

<i>Period</i>	<i>Obligations</i>	
07/01/78-09/30/81	FY82: TOTAL: \$51,573	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parke, F. I.	LERC/Anderson, B. H.	41-Aero Engr

NGT 36-027-011 Case Western Reserve University 3945
Summer program of NASA-ASEE summer faculty fellowships

<i>Period</i>	<i>Obligations</i>	
12/16/69-03/31/83	FY82: \$268,600 TOTAL: \$1,940,843	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Prahl, J. M.	HQ-LB/Carter, C. H.	49-Engr, NEC

NSG 3221 Case Western Reserve University 3952
Convection in crystal growth and G-jitter

<i>Period</i>	<i>Obligations</i>	
09/01/78-07/30/82	FY82: TOTAL: \$155,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ostrach, S.	LERC/Sarsfield, L. P.	13-Physics

NSG 2384 Case Western Reserve University 3946
Prediction of system invariants in the presence of failure

<i>Period</i>	<i>Obligations</i>	
06/01/79-06/30/82	FY82: TOTAL: \$93,746	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Martin, C. F.	ARC/Doolin, B. F.	49-Engr, NEC

NSG 3246 Case Western Reserve University 3953
Anisotropy of directionally solidified nickel base superalloy monocrystals

<i>Period</i>	<i>Obligations</i>	
06/15/79-06/13/83	FY82: \$23,560 TOTAL: \$73,495	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ebert, L. J.	LERC/Gray, H. R.	47-Materials Engr

NSG 3040 Case Western Reserve University 3947
Heat transfer characteristics of porous materials

<i>Period</i>	<i>Obligations</i>	
10/01/74-12/28/82	FY82: \$41,000 TOTAL: \$261,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dybbs, A.	LERC/Aukerman, C. A.	47-Materials Engr

NSG 3251 Case Western Reserve University 3954
Use of the method of lines in fracture mechanics analyses with application to curved crack fronts

<i>Period</i>	<i>Obligations</i>	
03/01/79-02/28/83	FY82: \$49,995 TOTAL: \$172,859	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mendelson, A.	LERC/Shannon, J. L., Jr.	46-Mech Engr

NSG 3085 Case Western Reserve University 3948
Demonstration experiment on utilization of buffer memory system for transmission of color video using moderate bandwidth communications satellite channels

<i>Period</i>	<i>Obligations</i>	
10/23/75-03/18/82	FY82: TOTAL: \$623,845	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Claspy, P. C.	LERC/Stevens, G. H.	45-Elec Engr
Merat, F. L.		

NSG 3276 Case Western Reserve University 3955
Three-dimensional bispectra and the mean rate of transfer of energy in turbulence

<i>Period</i>	<i>Obligations</i>	
05/15/79-09/30/81	FY82: TOTAL: \$88,724	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Koenig, J. L.	LERC/Hsu, L. C.	12-Chemistry
	LERC/Philipp, W. H.	

NSG 3151 Case Western Reserve University 3949
The evaluation of surface texturing, by ion beam sputtering, on the mechanical fixation and biological compatibility of orthopedic alloys in bone

<i>Period</i>	<i>Obligations</i>	
05/01/77-01/31/82	FY82: TOTAL: \$28,569	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gibbons, D. F.	LERC/Kerslake, W. R.	56-Medical Sciences

NSG 3291 Case Western Reserve University 3956
Self-diffusion of oxygen and aluminum in doped alumina

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/29/82	FY82: TOTAL: \$102,981	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Halloran, J. W.	LERC/Smialek, J. L.	47-Materials Engr
Cooper, A. R.		

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NAG 3-84 **Cleveland State University** **3957**
Development of optimization techniques for control of vehicle stored energy and optimization of hybrid vehicle propulsion section

<i>Period</i>	<i>Obligations</i>	
06/16/80-07/01/82	FY82: \$9,998	TOTAL: \$109,136
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Donoghue, J. F.	LERC/Stenger, F. J.	49-Engr, NEC
Burghart, J. H.		

NAG 3-106 **Cleveland State University** **3958**
Effect of stress on ultrasonic pulses in fiber reinforced composites

<i>Period</i>	<i>Obligations</i>	
10/01/80-12/31/82	FY82: \$38,300	TOTAL: \$38,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hemann, J. H.	LERC/Vary, A.	47-Materials Engr

NAG 3-108 **Cleveland State University** **3959**
High phase order induction motors

<i>Period</i>	<i>Obligations</i>	
09/29/80-05/26/83	FY82: \$39,762	TOTAL: \$71,332
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Klingshirn, E. A.	LERC/Hatvani, B. R.	45-Elec Engr

NAG 3-138 **Cleveland State University** **3960**
NASA-Cleveland State University internship program

<i>Period</i>	<i>Obligations</i>	
12/15/80-03/15/83	FY82: \$22,264	TOTAL: \$22,264
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goradia, C.	LERC/Weinberg, I.	13-Physics
Goradia, M. G.	LERC/Brandhurst, H. W.	

NAG 3-144 **Cleveland State University** **3961**
Theory of high base resistivity BSF silicon solar cell

<i>Period</i>	<i>Obligations</i>	
12/22/80-09/20/82	FY82: \$1,016	TOTAL: \$22,490
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goradia, C.	LERC/Baraona, C. R.	13-Physics
	LERC/Weinberg, I. W.	

NAG 3-155 **Cleveland State University** **3962**
Expansion of Presto computer code for off-design performance calculation of steam turbine generators

<i>Period</i>	<i>Obligations</i>	
02/10/81-12/23/82	FY82: \$68,313	TOTAL: \$68,313
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goria, R. S.	LERC/Staiger, P. J.	46-Mech Engr
Larson, V. H.		

NAG 3-156 **Cleveland State University** **3963**
Interference between analog and digital methods of modulation of television signals

<i>Period</i>	<i>Obligations</i>	
01/09/81-06/20/83	FY82: \$64,649	TOTAL: \$184,438
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grouppos, P. P.	LERC/Whyte, W. A.	45-Elec Engr
	LERC/Miller, E. F.	

NAG 3-162 **Cleveland State University** **3964**
Dynamic color graphics for interactive simulation and data analysis

<i>Period</i>	<i>Obligations</i>	
03/10/81-03/09/82	FY82: \$68,806	TOTAL: \$68,806
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heines, T. S.	LERC/Leibecki, H. F.	29-Math/Computer, NEC

NAG 3-169 **Cleveland State University** **3965**
An investigation of the electrical characteristics of a rectenna element and a rectenna array

<i>Period</i>	<i>Obligations</i>	
03/30/81-12/31/82	FY82: \$25,575	TOTAL: \$25,575
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Maisel, J. E.	LERC/Triner, J. E.	45-Elec Engr

NAG 3-186 **Cleveland State University** **3966**
Advancement of spur gear design technology

<i>Period</i>	<i>Obligations</i>	
05/28/81-05/26/83	FY82: \$54,977	TOTAL: \$109,959
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frater, J. J.	LERC/Coy, J. J.	46-Mech Engr
Kasuba, R.		

NAG 3-241 **Cleveland State University** **3967**
Effect of heat treatment of electrical contacts to gallium arsenide

<i>Period</i>	<i>Obligations</i>	
12/15/81-12/14/82	FY82: \$9,935	TOTAL: \$9,935
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goradia, M. G.	LERC/Weinberg, I.	45-Elec Engr

NAG 3-249 **Cleveland State University** **3968**
Theory of gallium arsenide solar cells with sunlight concentration up to 100X

<i>Period</i>	<i>Obligations</i>	
01/04/82-01/03/83	FY82: \$32,294	TOTAL: \$32,294
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goradia, C.	LERC/Curtis, H. B.	45-Elec Engr
	LERC/Weinberg, I.	

NAG 3-254 **Cleveland State University** **3969**
Study and implementation of LERC lab wide protocol for the cable television data network

<i>Period</i>	<i>Obligations</i>	
02/01/82-01/31/83	FY82: \$43,260	TOTAL: \$43,260
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Megargle, R.	LERC/Schulte, R. R.	22-Computer Science
Bockhoff, F.	LERC/Pillay, S. K.	

NAG 3-315 **Cleveland State University** **3970**
Investigation of experimental techniques to detect, locate and quantify gear noise in helicopter transmissions

<i>Period</i>	<i>Obligations</i>	
07/31/82-12/30/83	FY82: \$95,995	TOTAL: \$95,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Flanagan, P. M.	LERC/Coy, J. J.	46-Mech Engr
Atherton, W. J.		

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-338 Cleveland State University 3971
 CSU-NASA graduate internship in thermophoto voltaic
Period Obligations
 09/22/82-12/21/83 FY82: \$25,006 TOTAL: \$25,006
Prin. Invest. NASA Tech. Officer CASE Category
 Piszczor, M. F., Jr. LERC/Bercaw, R. W. 45-Elec Engr
 Goradia, M. LERC/Sater, B. L.

NCC 3-20 Cleveland State University 3978
 Internship program in digital communications technology
Period Obligations
 09/01/82-02/01/84 FY82: \$60,000 TOTAL: \$60,000
Prin. Invest. NASA Tech. Officer CASE Category
 Groumpos, P. P. LERC/Connolly, D. J. 45-Elec Engr

NAG 3-339 Cleveland State University 3972
 Conjugate gradient procedures for turbomachinery applications
Period Obligations
 10/01/82-09/30/83 FY82: \$28,919 TOTAL: \$28,919
Prin. Invest. NASA Tech. Officer CASE Category
 Chang, S. H. LERC/Johnson, G. M. 41-Aero Engr

NSG 3155 Cleveland State University 3979
 Dense silicon-nitride bodies without additives
Period Obligations
 06/30/77-09/30/82 FY82: TOTAL: \$44,850
Prin. Invest. NASA Tech. Officer CASE Category
 Yeh, H. C. LERC/Dutta, S. 43-Chem Engr

NCC 3-3 Cleveland State University 3973
 Graduate study program in unsteady heat transfer in turbomachinery
Period Obligations
 09/29/79-12/31/82 FY82: TOTAL: \$67,512
Prin. Invest. NASA Tech. Officer CASE Category
 Heiles, C. E. LERC/Wang, C. R. 46-Mech Engr
 LERC/Simoneau, R.

NSG 3257 Cleveland State University 3980
 A study of dynamic energy equations
Period Obligations
 03/15/79-09/30/82 FY82: TOTAL: \$58,492
Prin. Invest. NASA Tech. Officer CASE Category
 Larson, V. H. LERC/Lorenzo, C. F. 46-Mech Engr

NCC 3-6 Cleveland State University 3974
 Power train development/analysis large scale wind turbine supporting research and technology program
Period Obligations
 02/15/80-07/28/83 FY82: \$109,865 TOTAL: \$367,117
Prin. Invest. NASA Tech. Officer CASE Category
 Kasuba, R. LERC/Savino, J. M. 46-Mech Engr
 Penney, D. L. LERC/Finnegan, D.

NSG 3259 Cleveland State University 3981
 Nitridation kinetics and reaction sintering of silicon nitride
Period Obligations
 03/26/79-12/31/81 FY82: TOTAL: \$50,562
Prin. Invest. NASA Tech. Officer CASE Category
 Yeh, H. C. LERC/Herbell, T. P. 47-Materials Engr

NCC 3-16 Cleveland State University 3975
 Experimental and analytical investigations of characteristics of stand alone solar photovoltaic energy systems and components
Period Obligations
 10/13/80-05/04/84 FY82: \$418,867 TOTAL: \$564,217
Prin. Invest. NASA Tech. Officer CASE Category
 Jain, C. LERC/Leibecki, H. F. 45-Elec Engr
 Groumpos, P. P.

NAG 3-313 Cuyahoga Community College 3982
 Pre-engineering program
Period Obligations
 09/01/82-08/31/84 FY82: \$7,455 TOTAL: \$7,455
Prin. Invest. NASA Tech. Officer CASE Category
 Wieser, N. LERC/Bailey, C. E. 49-Engr, NEC

NCC 3-17 Cleveland State University 3976
 Computerized mathematical model for optimizing cost and electric output of phosphoric acid fuel cells
Period Obligations
 03/09/81-09/14/83 FY82: \$63,402 TOTAL: \$113,382
Prin. Invest. NASA Tech. Officer CASE Category
 Alkasab, K. A. LERC/Presler, A. F. 46-Mech Engr

NAG 3-298 Kent State University 3983
 Finite elements generation using maxima
Period Obligations
 06/30/82-06/29/83 FY82: \$55,558 TOTAL: \$55,558
Prin. Invest. NASA Tech. Officer CASE Category
 Wang, P. S. LERC/Chamis, C. C. 29-Math/Cmputer, NEC
 LERC/Hirschbein, M. S.

NCC 3-19 Cleveland State University 3977
 Terrestrial space energetics and power systems
Period Obligations
 09/01/82-08/31/83 FY82: \$25,000 TOTAL: \$25,000
Prin. Invest. NASA Tech. Officer CASE Category
 Chang, G. C. LERC/Bercaw, R. W. 42-Astro Engr

NAG 5-165 Kent State University 3984
 Classification of terrain complexity by autocorrelation
Period Obligations
 04/15/81-04/15/83 FY82: \$10,746 TOTAL: \$21,070
Prin. Invest. NASA Tech. Officer CASE Category
 Craig, R. G. GSFC/Labovitz, M. L. 32-Geological Sci

NAS 5-26111 Kent State University 3985
 Automated techniques for mapping urban land cover with remote sensing data
Period Obligations
 03/31/80-11/30/82 FY82: TOTAL: \$8,951
Prin. Invest. NASA Tech. Officer CASE Category
 Craig, R. GSFC/Toll, D. L. 32-Geological Sci

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NSG 2013 **Kent State University** **3986**
Transport of trace contaminants through porous media
Period *Obligations*
03/15/74-12/31/82 FY82: TOTAL: \$98,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Madey, R. ARC/Quattrone, P. D. 12-Chemistry

NAG 2-32 **Ohio State University** **3993**
Subsonic wing/fuselage aerodynamic study
Period *Obligations*
04/01/80-07/31/81 FY82: TOTAL: \$48,785
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregorek, G. M. ARC/Hicks, R. M. 41-Aero Engr
ARC/Corsiglia, V.

NAGW 368 **Kenyon College** **3987**
Regulation of differential growth in root gravitropism
Period *Obligations*
09/01/82-08/31/83 FY82: \$26,697 TOTAL: \$26,697
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Edwards, K. L. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 2-34 **Ohio State University** **3994**
Zero modules and inverse system design
Period *Obligations*
04/01/80-06/30/83 FY82: \$15,118 TOTAL: \$46,874
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wyman, B. ARC/Meyer, G. 49-Engr, NEC

NAS 9-14538 **Miami University** **3988**
Research on a possible mechanism of O-G sickness
Period *Obligations*
02/15/75-04/30/83 FY82: \$33,835 TOTAL: \$229,145
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, D. E. JSC/Homick, J. L. 59-Life Sci, NEC
JSC/Reschke, M. F.

NAG 2-112 **Ohio State University** **3995**
Use of computer aided testing in the investigation of pilot response to critical in flight events
Period *Obligations*
04/01/81-10/31/82 FY82: \$85,000 TOTAL: \$141,496
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rockwell, T. H. ARC/Lauber, J. K. 69-Psych, NEC
Giffin, W. C.

NAS 9-16051 **Miami University** **3989**
Motion perceptions evoked by oscillating linear accellerator on Earth and in zero-gravity
Period *Obligations*
01/17/80-10/01/82 FY82: TOTAL: \$27,109
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, D. E. JSC/Evans, J. S. 59-Life Sci, NEC

NAG 2-163 **Ohio State University** **3996**
Unitary group methods in quantum chemistry
Period *Obligations*
03/01/82-03/31/83 FY82: \$7,000 TOTAL: \$7,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shavitt, I. ARC/Langhoff, S. R. 12-Chemistry

NCC 1-12 **Miami University** **3990**
Basic research on radiation induced lasers
Period *Obligations*
05/15/79-11/30/82 FY82: \$56,285 TOTAL: \$197,641
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wells, W. E. LARC/Deyoung, R. J. 13-Physics
LARC/Conway, E. J.

NAG 2-184 **Ohio State University** **3997**
Pilot performance and workload assessment: An analysis of pilot errors
Period *Obligations*
07/01/82-09/30/82 FY82: \$10,744 TOTAL: \$10,744
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jensen, R. S. ARC/Hart, S. G. 99-Multi-Discip

NAG 1-30 **Ohio State University** **3991**
Coordination and control of multiple-armed manipulation systems
Period *Obligations*
02/01/80-01/31/81 FY82: TOTAL: \$32,545
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Klein, C. A. LARC/Woolley, C. T. 42-Astro Engr
LARC/Barker, L. K.

NAG 2-195 **Ohio State University** **3998**
Discrete control modelling of computer-aided control of strongly interactive systems
Period *Obligations*
08/01/82-07/31/83 FY82: \$81,272 TOTAL: \$81,272
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, R. A. ARC/Hartzell, E. J. 69-Psych, NEC
Jagacinski, R. J.

NAG 1-238 **Ohio State University** **3992**
A summary and integration of research concerning single pilot operational problems
Period *Obligations*
01/01/82-08/31/82 FY82: \$11,859 TOTAL: \$11,859
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chapman, G. C. LARC/Bergeron, H. P. 41-Aero Engr
Weislogel, G. S. LARC/Shaugnessy, J. D.

NAG 3-28 **Ohio State University** **3999**
Effects of ice formation on 2D aerodynamic shapes
Period *Obligations*
02/01/80-06/04/83 FY82: \$139,960 TOTAL: \$223,488
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregorek, G. M. LERC/Shaw, R. J. 41-Aero Engr
Bragg, M. B.

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-36 **Ohio State University** **4000**
Vibration analysis of turbine engine blades
Period *Obligations*
05/01/80-04/28/83 FY82: \$61,599 TOTAL: \$160,335
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leissa, A. W. LERC/Brown, G. V. 46-Mech Engr

NAGW 297 **Ohio State University** **4007**
The role of acid and calcium gradients in gravitropism
Period *Obligations*
03/01/82-02/28/83 FY82: \$41,542 TOTAL: \$41,542
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vans, M. E. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 3-109 **Ohio State University** **4001**
Propeller/rotor icing study
Period *Obligations*
10/06/80-03/30/83 FY82: \$49,991 TOTAL: \$90,090
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, J. D. LERC/Shaw, R. J. 41-Aero Engr

NAS 1-14406 **Ohio State University** **4008**
General aviation low-speed airfoil design and development service
Period *Obligations*
06/30/76-06/30/81 FY82: TOTAL: \$373,107
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregorek, G. M. LARC/McGhee, R. J. 41-Aero Engr
LARC/Barnwell, R. W.

NAG 3-118 **Ohio State University** **4002**
Study of airfoils for propeller application (acoustics/performance)
Period *Obligations*
10/27/80-12/31/81 FY82: TOTAL: \$31,547
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, J. D. LERC/Bober, L. J. 41-Aero Engr
LERC/Mikkelson, D. C.

NAS 1-15680 **Ohio State University** **4009**
Flight evaluation of the aeroacoustics of general aviation propellers
Period *Obligations*
01/04/79-12/15/82 FY82: TOTAL: \$205,436
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregorek, G. M. LARC/Greene, G. C. 41-Aero Engr
Korkan, K. D. LARC/Raney, J. P.
Weislogel, G. S.

NAG 3-159 **Ohio State University** **4003**
Engineering calculations for communications satellite systems planning
Period *Obligations*
01/20/81-07/13/84 FY82: \$186,642 TOTAL: \$279,946
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Levis, C. A. LERC/Miller, E. F. 45-Elec Engr
Martin, C. H. LERC/Whyte, W. A.

NAS 1-15969 **Ohio State University** **4010**
Determine the IFR operation profile of the general aviation single pilot
Period *Obligations*
09/12/79-02/28/82 FY82: TOTAL: \$71,916
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weislogel, G. S. LARC/Bergeron, H. P. 41-Aero Engr

NAG 3-330 **Ohio State University** **4004**
Tailored airfoils for wind turbine applications
Period *Obligations*
09/15/82-09/14/83 FY82: \$99,902 TOTAL: \$99,902
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregorer, G. M. LERC/Saviro, J. M. 42-Astro Engr
Lee, J. D.

NAS 1-16388 **Ohio State University** **4011**
Bellanca skyrocket natural laminar flow flight research
Period *Obligations*
08/20/80-09/15/82 FY82: \$13,960 TOTAL: \$166,449
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregorek, G. M. LARC/Holmes, B. J. 41-Aero Engr

NAG 5-52 **Ohio State University** **4005**
Ultraviolet studies of later type beryllium stars
Period *Obligations*
05/15/80-08/31/83 FY82: TOTAL: \$10,865
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sletteback, A. GSFC/Bogges, A. 11-Astronomy

NAS 5-25888 **Ohio State University** **4012**
Utilization of range-difference observation in geodynamics
Period *Obligations*
09/19/79-12/18/82 FY82: \$20,000 TOTAL: \$120,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, I. I. GSFC/Stephanides, C. C. 32-Geological Sci

NAG 5-266 **Ohio State University** **4006**
Measurements of chromospheric densities and geometrical extensions of Sato types giant and super-giant stars
Period *Obligations*
09/01/82-08/31/83 FY82: \$5,000 TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Linsky, J. L. GSFC/Kondo, Y. 11-Astronomy
Wing, R. F.

NASW 3393 **Ohio State University** **4013**
Study involving communications link characterizations experiments with the COMSTAR satellite
Period *Obligations*
06/14/80-03/14/81 FY82: TOTAL: \$195,988
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hodge, D. B. HQ-EC/Ippolito, L. J. 45-Elec Engr

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NSG 2298 **Ohio State University** **4028**
 Experimental analyses of trailing edge flows
Period *Obligations*
 02/01/78-01/31/81 **FY82:** **TOTAL: \$211,229**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Petrie, S. L. ARC/Marvin, J. G. 41-Aero Engr
 Korkan, K. D. ARC/McDevitt, J. B.
 Hoffmann, M.

NSG 5299 **Ohio State University** **4035**
 A search for variations in the spectrum
Period *Obligations*
 08/15/78-09/14/82 **FY82:** **TOTAL: \$1,735**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Slettebak, A. E. GSFC/Wende, C. 11-Astronomy

NSG 3164 **Ohio State University** **4029**
 Deformation structures in metal crystals due to wear and
 machining at high speed
Period *Obligations*
 12/01/77-12/30/81 **FY82:** **TOTAL: \$109,835**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Black, J. T. LERC/Bill, R. C. 47-Materials Engr
 LERC/Ludwig, L. P.

NSG 5368 **Ohio State University** **4036**
 Research of binary systems and composite sources involving
 cool and hot components
Period *Obligations*
 06/01/79-05/31/83 **FY82: \$4,000** **TOTAL: \$32,240**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wing, R. F. GSFC/Boggess, A. 11-Astronomy
 Stencil, R. E.

NSG 3235 **Ohio State University** **4030**
 Mechanism of fiber release during pyrolysis of carbon fiber
 reinforced plastics
Period *Obligations*
 12/01/78-11/30/81 **FY82:** **TOTAL: \$93,186**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, E. E. LERC/Bowles, K. J. 49-Engr, NEC
 LERC/Serafini, T. T.

NSG 7479 **Ohio State University** **4037**
 Investigation of infrared spectra of atmospheric gases to support
 stratospheric spectroscopic observations
Period *Obligations*
 11/01/78-10/31/82 **FY82:** **TOTAL: \$219,029**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shaw, J. H. HQ-EB/Chandra, S. 31-Atmos Sci
 HQ-EB/Watson, R. T.

NSG 3247 **Ohio State University** **4031**
 Propeller aero-acoustic methodology
Period *Obligations*
 01/15/79-09/29/82 **FY82: \$70,773** **TOTAL: \$276,397**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gregorek, G. M. LERC/Mitchell, G. A. 41-Aero Engr
 Korkan, K. D.

NAG 1-124 **Ohio University** **4038**
 An investigation of methods for efficient transfer of weather
 information to the pilot
Period *Obligations*
 12/01/80-11/30/82 **FY82: \$29,988** **TOTAL: \$59,940**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McFarland, R. H. LARC/Adams, J. J. 41-Aero Engr
 Lilley, R. W.

NSG 3269 **Ohio State University** **4032**
 In search of a theoretical foundation for quantitative ultrasonic
 measurement of fracture toughness
Period *Obligations*
 05/01/79-10/05/82 **FY82: \$40,000** **TOTAL: \$87,887**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fu, L. S. LERC/Vary, A. 47-Materials Engr

NGR 36-009-017 **Ohio University** **4039**
 Air transportation systems: Emphasis on low frequency naviga-
 tion
Period *Obligations*
 02/26/71-11/30/84 **FY82: \$49,650** **TOTAL: \$816,055**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McFarland, R. H. LARC/Howell, W. E. 45-Elec Engr

NSG 3302 **Ohio State University** **4033**
 The application of optical computing techniques to jet engine
 controls
Period *Obligations*
 08/01/79-07/29/83 **FY82: \$99,973** **TOTAL: \$279,900**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Collins, S. A., Jr. LERC/Baumbilk, R. J. 21-Mathematics
 LERC/Sellers, J. F.

NAG 3-50 **University of Akron** **4040**
 NASA LeRC/Akron University graduate cooperative fellowship
 programs
Period *Obligations*
 06/01/80-05/29/83 **FY82: \$50,000** **TOTAL: \$120,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fertis, D. G. LERC/Chamis, C. C. 41-Aero Engr
 Chang, T. P. LERC/Johns, R. H.
 Simon, A.

NSG 5265 **Ohio State University** **4034**
 Basic research for the Earth dynamics program
Period *Obligations*
 04/01/78-06/30/83 **FY82: \$34,217** **TOTAL: \$344,217**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mueller, I. I. GSFC/Welker, J. 32-Geological Sci
 Uotila, U. A. GSFC/Smith, D. E.

NAG 3-54 **University of Akron** **4041**
 Self adaptive solutions strategies
Period *Obligations*
 08/01/80-02/28/83 **FY82:** **TOTAL: \$80,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Padovan, J. LERC/Chamis, C. C. 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAG 3-55	University of Akron	4042	NGT 36-001-800	University of Akron	4049
Helicopter transmission reliability model			Optimization structural analysis and dynamics		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/80-07/29/83	FY82: \$30,000	TOTAL: \$107,630	09/01/80-08/31/83	FY82: \$13,000	TOTAL: \$37,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Savage, M.	LERC/Coy, J. J.	46-Mech Engr	Fertis, D. G.	HQ-LB/Carter, C. H.	44-Civil Engr
NAG 3-265	University of Akron	4043	NGT 36-001-801	University of Akron	4050
Analysis of thermo-mechanical response of thick thermal protective coating systems			Training grant for algorithms for non linear problems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/05/82-03/04/83	FY82: \$54,786	TOTAL: \$54,786	09/01/80-08/31/83	FY82: \$13,000	TOTAL: \$37,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Padovan, J.	LERC/Hendricks, R. C.	46-Mech Engr	Chang, T. Y.	HQ-LB/Carter, C. H.	44-Civil Engr
Chung, B. T.					
Braun, M. J.					
NAG 3-304	University of Akron	4044	NGT 36-001-802	University of Akron	4051
Effects of journal orbital vibration on the time dependent pressure-flow characteristics of a hydrostatic journal bearing			Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$57,108	TOTAL: \$57,108	06/01/82-05/31/83	FY82: \$12,500	TOTAL: \$12,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Braun, M. J.	LERC/Hannum, N. P.	49-Engr, NEC	Savinelli, R. F.	HQ-LB/Carter, C. H.	43-Chem Engr
Adams, M. L.					
NAG 3-307	University of Akron	4045	NGT 36-001-803	University of Akron	4052
Nonlinear finite element analysis of shells with large aspect ratios			Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/30/82-06/29/83	FY82: \$52,428	TOTAL: \$52,428	06/01/82-05/31/83	FY82: \$11,800	TOTAL: \$11,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chang, T. Y.	LERC/Chamis, C. C.	41-Aero Engr	Savinelli, R. F.	HQ-LB/Carter, C. H.	43-Chem Engr
	LERC/Johns, R. H.				
NAG 3-318	University of Akron	4046	NSG 3283	University of Akron	4053
Investigation of liquid propellant reorientation induced mixing and thermal behavior in a low-gravity environment			Finite elements for rotor/stator interactive forces in general engine dynamic simulator		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/82-09/30/83	FY82: \$39,600	TOTAL: \$39,600	08/31/79-12/30/82	FY82:	TOTAL: \$216,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hochstein, J. I.	LERC/Aydelott, J. C.	46-Mech Engr	Adams, M. L.	LERC/Chamis, C. C.	41-Aero Engr
Gerhart, P. M.	LERC/Smolak, G. R.		Fertis, D. G.	LERC/Hirschbein, M. S.	
NAS 9-16043	University of Akron	4047	NAG 1-8	University of Cincinnati	4054
Life science experiment			Spline collocation for viscous flow over-after body configurations		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
01/17/80-01/31/82	FY82:	TOTAL: \$14,120	11/01/79-10/31/82	FY82: \$39,862	TOTAL: \$112,335
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herron, D. E.	JSC/French, B. O.	59-Life Sci, NEC	Rubin, S. S.	LARC/Swanson, R. C.	41-Aero Engr
				LARC/Putnam, L. E.	
NCA 2-5101	University of Akron	4048	NAG 1-204	University of Cincinnati	4055
The indentification of a practicable legal regime for the carriage of goods and persons to, from and within outer space			Silicon superlattices II: Silicon-germanium (Si-Ge) heterostructures and systems		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
10/01/80-04/01/83	FY82:	TOTAL: \$30,000	09/01/81-04/30/83	FY82:	TOTAL: \$45,721
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Desaussure, H.	ARC/Glazer, J. H.	99-Multi-Discip	Moriarity, J. A.	LARC/Stermer, R. L.	45-Elec Engr
Rizza, J. R.	ARC/Pittman, R. B.			LARC/Hayes, P. J.	

**NASA'S UNIVERSITY PROGRAM
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NAG 2-38	University of Cincinnati	4056			
Flap-lag-torsional dynamics of extensional and interextensional rotor blades in hover and in forward flight					
<i>Period</i>		<i>Obligations</i>			
07/01/80-12/31/82	FY82:	TOTAL: \$63,158			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Crespo Da Silva, M.R.	ARC/Hodges, D. H.	41-Aero Engr			
NAG 2-175	University of Cincinnati	4057			
Study of optimal 3-D and 4-D trajectories for helicopters					
<i>Period</i>		<i>Obligations</i>			
06/01/82-08/31/83	FY82: \$32,916	TOTAL: \$32,916			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Slater, G. L.	ARC/Erzberger, H.	41-Aero Engr			
NAG 3-26	University of Cincinnati	4058			
Experimental study of radial turbine scrolls					
<i>Period</i>		<i>Obligations</i>			
03/01/80-02/26/83	FY82: \$37,000	TOTAL: \$111,230			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Tabakoff, W.	LERC/McLallin, K. L.	41-Aero Engr			
NAG 3-52	University of Cincinnati	4059			
Analytical study of the compressible three dimensional flow in turbine scrolls					
<i>Period</i>		<i>Obligations</i>			
03/27/80-03/26/82	FY82:	TOTAL: \$41,486			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Hamed, A. A.	LERC/Katsanis, T.	41-Aero Engr			
NAG 3-128	University of Cincinnati	4060			
Thermal and structural properties of molecular beam deposited diamond					
<i>Period</i>		<i>Obligations</i>			
11/17/80-11/15/82	FY82:	TOTAL: \$10,700			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Jackson, H.	LERC/Kolecki, J.	13-Physics			
NAG 3-193	University of Cincinnati	4061			
Investigation of experimental techniques to detect, locate and quantify gear noise in helicopter transmissions					
<i>Period</i>		<i>Obligations</i>			
09/01/81-08/31/82	FY82:	TOTAL: \$49,974			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Flanagan, P. M.	LERC/Coy, J. J.	46-Mech Engr			
Morse, I. E.					
NAG 3-194	University of Cincinnati	4062			
Study of internal viscous flows					
<i>Period</i>		<i>Obligations</i>			
07/15/81-07/13/83	FY82: \$72,620	TOTAL: \$134,988			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Ghia, K. N.	LERC/Katsanis, T.	41-Aero Engr			
Ghia, U.					
NAG 3-297	University of Cincinnati	4063			
Development of injection devices based upon GaAs					
<i>Period</i>		<i>Obligations</i>			
06/30/82-12/30/83	FY82: \$64,067	TOTAL: \$64,067			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Henderson, H. T.	LERC/Sundberg, G. R.	45-Elec Engr			
Kosel, P. B.					
NAS 8-34503	University of Cincinnati	4064			
Investigation of improved modal parameter estimation procedure					
<i>Period</i>		<i>Obligations</i>			
08/04/81-10/03/82	FY82: \$8,000	TOTAL: \$21,299			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Brown, D. L.	MSFC/Johnston, G. D.	41-Aero Engr			
	MSFC/Coleman, A. D.				
NCA 2-130101	University of Cincinnati	4065			
Improvement of parabolized Navier-Stokes solvers for subsonic, transonic, and supersonic flows					
<i>Period</i>		<i>Obligations</i>			
06/01/81-11/30/82	FY82:	TOTAL: \$27,300			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Davis, R. T.	ARC/Rakich, J. V.	41-Aero Engr			
NCA 2-130801	University of Cincinnati	4066			
Design and analysis of closed loop guidance laws for VTOL and STOL vehicles					
<i>Period</i>		<i>Obligations</i>			
08/15/78-07/01/81	FY82:	TOTAL: \$34,167			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Slater, G. L.	ARC/Erzberger, H.	41-Aero Engr			
	ARC/Xenakis, G.				
NCA 2-130901	University of Cincinnati	4067			
Development of a parabolized Navier-Stokes solver and numerical coordinate generator for subsonic and transonic plane flows					
<i>Period</i>		<i>Obligations</i>			
06/01/79-05/31/81	FY82:	TOTAL: \$39,216			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Davis, R. T.	ARC/Rakich, J. V.	41-Aero Engr			
NGT 36-004-800	University of Cincinnati	4068			
Graduate student training program in computational fluid dynamics					
<i>Period</i>		<i>Obligations</i>			
07/01/80-12/31/82	FY82: \$100,000	TOTAL: \$275,000			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Rubin, S. G.	HQ-RT/Graves, R. A., Jr.	41-Aero Engr			
NSG 1185	University of Cincinnati	4069			
Geometric modeling and analysis of rod-like large space structures					
<i>Period</i>		<i>Obligations</i>			
05/01/75-10/31/82	FY82: \$29,998	TOTAL: \$212,881			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Nayfeh, A. H.	LARC/Mikulak, M. M., Jr.	49-Engr, NEC			

**NASA'S UNIVERSITY PROGRAM
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NSG 1486 University of Cincinnati 4070
Investigation of improved modal parameter estimation techniques
Period *Obligations*
01/16/78-05/31/81 FY82: TOTAL: \$122,314
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, D. L. LARC/Monteith, J. H. 46-Mech Engr

NSG 3022 University of Cincinnati 4071
Investigation of a new family of semiconductor diodes based upon bulk effects of deep impurities
Period *Obligations*
07/01/74-05/03/85 FY82: \$237,207 TOTAL: \$459,619
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henderson, H. T. LERC/Sundberg, G. R. 45-Elec Engr

NSG 3024 University of Cincinnati 4072
Research into the use of silane pyrolytic deposition methods for SiO₂ growth in the construction of stable high energy density capacitors
Period *Obligations*
07/01/74-03/31/83 FY82: TOTAL: \$135,266
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schetz, J. A. LERC/Renz, D. 45-Elec Engr

NSG 3188 University of Cincinnati 4073
Investigations into the geometry of straight and spiral bevel gears
Period *Obligations*
04/01/78-05/26/84 FY82: \$75,000 TOTAL: \$175,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huston, R. L. LERC/Coy, J. J. 46-Mech Engr

NSG 3218 University of Cincinnati 4074
Study of environmental solid particle effects on axial flow compressor
Period *Obligations*
11/15/78-06/30/82 FY82: TOTAL: \$59,667
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tabakoff, W. LERC/Stubbs, R. M. 46-Mech Engr

NSG 3263 University of Cincinnati 4075
A mechanistic evaluation of deformation and fracture in high temperature low cycle fatigue
Period *Obligations*
03/26/79-06/25/82 FY82: TOTAL: \$93,864
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Antolovich, S. D. LERC/Hirschberg, M. H.
LERC/Oldrieve, R. E. 47-Materials Engr

NSG 3267 University of Cincinnati 4076
Analysis of internal viscous flows using theory of spines and implicit numerical methods
Period *Obligations*
04/02/79-04/29/82 FY82: TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ghia, K. N. LERC/Kao, H. C. 41-Aero Engr
Ghia, U.

DEN 3-189 University of Dayton 4077
Study and review of permanent magnets for electric vehicle propulsion motors
Period *Obligations*
01/08/80-12/16/81 FY82: TOTAL: \$59,852
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strnat, K. J. LERC/Gourash, F. 47-Materials Engr

DEN 3-286 University of Dayton 4078
Fatigue testing of wood composite wind turbine blade materials
Period *Obligations*
03/24/82-06/07/83 FY82: \$74,500 TOTAL: \$74,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emery, S. A. LERC/Lark, R. L. 47-Materials Engr

NAG 1-143 University of Dayton 4079
Evaluation of moire technique for wind tunnel metrology
Period *Obligations*
01/01/81-09/30/81 FY82: TOTAL: \$29,374
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harris, J. S. LARC/Holmes, H. K. 13-Physics
Harding, K. G. LARC/Burner, A. W.

NAG 3-65 University of Dayton 4080
Development of an airfoil ice accretion model
Period *Obligations*
04/28/80-04/25/83 FY82: \$50,990 TOTAL: \$142,518
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Luers, J. K. LERC/Shaw, R. J. 41-Aero Engr

NAG 3-246 University of Dayton 4081
Crack initiation and growth at stress concentration sites
Period *Obligations*
01/02/82-01/01/83 FY82: \$54,447 TOTAL: \$54,447
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gallagher, J. P. LERC/Orange, T. W. 47-Materials Engr
LERC/Shannon, J. L.

NAS 2-11184 University of Dayton 4082
Development of a survivability model for aircraft accidents involving fire
Period *Obligations*
02/16/82-11/15/82 FY82: \$75,133 TOTAL: \$75,133
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Engler, N. A. ARC/Cagliostro, D. E. 29-Math/Computer, NEC
ARC/Parker, J. A.

NAS 3-22353 University of Dayton 4083
Preliminary static impact testing of boron aluminium composite tip panels
Period *Obligations*
01/24/80-01/24/82 FY82: TOTAL: \$49,843
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bless, S. J. LERC/McDaniels, D. L. 47-Materials Engr
Cross, D. L.

**NASA'S UNIVERSITY PROGRAM
OHIO (Continued)**

NAS 6-3086 University of Dayton 4084
 Service, materials and personnel necessary to provide correlative data efforts for WFC field measurements office
Period Obligations
 03/01/80-10/31/82 FY82: \$40,593 TOTAL: \$182,145
Prin. Invest. NASA Tech. Officer CASE Category
 Luers, J. K. GSFC/Schmidlin, F. J. 31-Atmos Sci
 Keller, J.
 Jenks, F.

NAG 3-72 University of Toledo 4091
 Numerical simulation of heat transfer phenomena occurring during deicing of aircraft components
Period Obligations
 06/01/80-10/31/82 FY82: TOTAL: \$83,000
Prin. Invest. NASA Tech. Officer CASE Category
 Dewitt, K. J. LERC/Shaw, R. J. 41-Aero Engr
 Keith, T. G.

NAS 8-33369 University of Dayton 4085
 Examination of requirements and methods for reporting atmospheric information
Period Obligations
 02/12/79-04/11/82 FY82: TOTAL: \$155,880
Prin. Invest. NASA Tech. Officer CASE Category
 Leurs, J. K. MSFC/Camp, D. W. 31-Atmos Sci
 MSFC/Alexander, M. B.

NAG 3-123 University of Toledo 4092
 Local area networking support at the Lewis research center
Period Obligations
 10/20/80-03/30/82 FY82: TOTAL: \$125,529
Prin. Invest. NASA Tech. Officer CASE Category
 Solarek, D. J. LERC/Schulte, R. R.
 Ewing, D. J. 22-Computer Science

NAS 8-34544 University of Dayton 4086
 Intermescent coding development
Period Obligations
 07/17/81-07/16/82 FY82: TOTAL: \$52,544
Prin. Invest. NASA Tech. Officer CASE Category
 Salyer, I. O. MSFC/Harwell, R. J. 12-Chemistry
 MSFC/Stuckey, J. M.

NAG 3-157 University of Toledo 4093
 Interference susceptibility of digital television systems
Period Obligations
 01/09/81-01/28/83 FY82: \$40,000 TOTAL: \$78,779
Prin. Invest. NASA Tech. Officer CASE Category
 Kwatra, S. C. LERC/Stevens, G. H. 45-Elec Engr

NAS 8-34682 University of Dayton 4087
 Turbine blade damping study
Period Obligations
 12/03/81-06/02/83 FY82: \$149,249 TOTAL: \$149,249
Prin. Invest. NASA Tech. Officer CASE Category
 Drake, M. L. MSFC/Kiefling, L. 46-Mech Engr
 MSFC/Schutzenhofer, L.

NAG 3-184 University of Toledo 4094
 Carbon combustion in zero gravity
Period Obligations
 06/01/81-06/30/82 FY82: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
 Dewitt, K. J. LERC/Labus, T. L. 13-Physics

NAS 8-34687 University of Dayton 4088
 Prediction of atmospheric turbulence using an index to the DRT
Period Obligations
 07/02/82-07/01/83 FY82: \$59,832 TOTAL: \$59,832
Prin. Invest. NASA Tech. Officer CASE Category
 Luers, J. K. MSFC/Camp, D. W. 31-Atmos Sci
 MSFC/Alexander, M. B.

NAG 3-276 University of Toledo 4095
 A study of friction and wear of metals in corrosive aqueous solutions
Period Obligations
 04/15/82-04/14/84 FY82: \$28,686 TOTAL: \$28,686
Prin. Invest. NASA Tech. Officer CASE Category
 Rengstorff, G. W. LERC/Buckley, D. H. 43-Chem Engr
 LERC/Loomis, W. R.

NSG 6026 University of Dayton 4089
 Study of the effects of heavy rains on aircraft aerodynamics
Period Obligations
 04/01/79-10/31/81 FY82: TOTAL: \$110,978
Prin. Invest. NASA Tech. Officer CASE Category
 Luers, J. K. GSFC/Carr, R. E. 41-Aero Engr
 Haines, P. A.

NAG 3-309 University of Toledo 4096
 A laser-Doppler anemometer investigation of a normal shock-wave-boundary layer interaction
Period Obligations
 07/25/82-07/24/83 FY82: \$23,918 TOTAL: \$23,918
Prin. Invest. NASA Tech. Officer CASE Category
 Keith, T. G., Jr. LERC/Hingst, W. R. 41-Aero Engr

NAG 3-42 University of Toledo 4090
 Digital television simulation facility
Period Obligations
 03/31/80-10/15/82 FY82: TOTAL: \$92,613
Prin. Invest. NASA Tech. Officer CASE Category
 Kwatra, S. C. LERC/Wythe, W. 45-Elec Engr

NAG 5-67 University of Toledo 4097
 Studies of new bright chromospheric action stars
Period Obligations
 06/01/80-12/31/81 FY82: TOTAL: \$5,000
Prin. Invest. NASA Tech. Officer CASE Category
 Bopp, B. W. GSFC/Bogges, A. 11-Astronomy

NASA'S UNIVERSITY PROGRAM
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NAG 5-167 **University of Toledo** **4098**
 Correlation of far ultraviolet extinction and illuminating stars of reflection nebulae
Period *Obligations*
 05/01/81-09/30/82 FY82: \$3,646 TOTAL: \$8,842
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Witt, W. N. GSFC/Kondo, Y. 11-Astronomy

NSG 3156 **University of Toledo** **4105**
 Analysis of the Stirling engine oil pumping ring seal
Period *Obligations*
 07/01/77-12/31/81 FY82: TOTAL: \$62,408
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Keith, T. E. LERC/Ludwig, L. P. 46-Mech Engr
 Smith, P. J.

NAG 5-253 **University of Toledo** **4099**
 Observation of stellar winds in two massive binary stars in known orbits
Period *Obligations*
 07/15/82-11/30/82 FY82: \$2,000 TOTAL: \$2,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Morrison, N. D. GSFC/Kondo, Y. 11-Astronomy
 Garmany, C. D.

NSG 3250 **University of Toledo** **4106**
 Thermodynamics of the potassium-sulfur-oxygen and related items
Period *Obligations*
 06/15/77-06/14/82 FY82: TOTAL: \$80,540
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Edwards, J. G. LERC/Stearns, C. A. 12-Chemistry
 LERC/Kohl, F. J.

NAG 5-254 **University of Toledo** **4100**
 Southern active chromosphere variables rotational modulation of selected stars
Period *Obligations*
 08/01/82-01/31/83 FY82: \$3,500 TOTAL: \$3,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bopp, B. W. GSFC/Kondo, Y. 11-Astronomy

NSG 3281 **University of Toledo** **4107**
 An investigation of the high frequency performance of series resonant inverters
Period *Obligations*
 06/01/79-08/28/83 FY82: \$34,931 TOTAL: \$90,723
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Stuart, T. A. LERC/Gruber, R. P. 45-Elec Engr

NAGW 89 **University of Toledo** **4101**
 Properties of interstellar grains
Period *Obligations*
 09/01/80-12/31/83 FY82: \$14,653 TOTAL: \$47,180
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Witt, A. N. HQ-EZ/Stencel, R. E. 11-Astronomy
 HQ-EZ/Weiler, E. J.

NSG 5359 **University of Toledo** **4108**
 Ultraviolet observations of various type supergiants
Period *Obligations*
 06/01/79-08/31/83 FY82: TOTAL: \$17,544
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Morrison, N. D. GSFC/Bogges, A. 11-Astronomy

NAGW 229 **University of Toledo** **4102**
 Chromospheric activity in the FK Comae stars
Period *Obligations*
 09/01/81-02/28/83 FY82: TOTAL: \$9,895
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bopp, B. W. HQ-EZ/Weiler, E. J. 11-Astronomy
 HQ-EZ/Bogges, N. W.

NSG 7301 **University of Toledo** **4109**
 Physical study of comets
Period *Obligations*
 01/01/77-06/30/83 FY82: TOTAL: \$61,366
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Delsemme, A. H. HQ-EL/Brinton, H. C. 11-Astronomy

NCC 3-5 **University of Toledo** **4103**
 Evaluation of the performance of wind turbine concepts and operating wind turbines
Period *Obligations*
 09/15/79-10/31/83 FY82: \$73,038 TOTAL: \$274,408
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Keith, T. G., Jr. LERC/Savino, J. M. 49-Engr, NEC
 Jeng, D. R.

NAG 1-255 **Wright State University** **4110**
 Synthesis and characterization of soluble melt-processable and thermally-curable polyimides and polyphenylenes
Period *Obligations*
 02/01/82-01/31/83 FY82: \$30,260 TOTAL: \$30,260
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Harris, F. W. LARC/Hergenrother, P. M. 12-Chemistry
 LARC/St. Clair, T. L.

NSG 3139 **University of Toledo** **4104**
 Stability analysis of wind turbines with long, flexible blades
Period *Obligations*
 02/22/77-02/02/83 FY82: \$75,975 TOTAL: \$332,919
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kaza, K. R. LERC/Brown, G. V. 41-Aero Engr

NCA 2-875002 **Wright State University** **4111**
 Motion sickness in the cat: Chemical aspects
Period *Obligations*
 01/01/80-09/30/82 FY82: \$11,711 TOTAL: \$59,645
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Crampton, G. H. ARC/Daunton, N. G. 51-Biological Sci

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NCC 2-204 Wright State University 4112
Functional significance of sensory interactions in the vestibular system in relation to self-motion perception and motion sickness
Period *Obligations*
08/01/82-07/31/83 FY82: \$20,478 TOTAL: \$20,478
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crampton, G. H. ARC/Daunton, N. G. 61-Biol Aspects

NGT 36-024-790 Wright State University 4113
Aerospace medicine residency program
Period *Obligations*
07/01/78-12/31/82 FY82: \$170,672 TOTAL: \$942,232
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mohler, S. R. HQ-EB/Nicogossian, A. E. 59-Life Sci, NEC

NAG 1-88 Youngstown State University 4114
Control augmentation for lateral control wheel steering
Period *Obligations*
07/14/80-08/13/81 FY82: TOTAL: \$23,620
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Foulkes, R. H. LARC/Creedon, J. F. 41-Aero Engr

OKLAHOMA

NAG 1-10 Oklahoma State University 4115
Diagnostic experiments on supersonic jet noise
Period *Obligations*
12/01/79-04/30/81 FY82: TOTAL: \$49,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McLaughlin, D. K. LARC/Seiner, J. M. 13-Physics

NAG 1-159 Oklahoma State University 4116
Research on the noise produced by large scale structure in supersonic jets
Period *Obligations*
03/01/81-06/30/82 FY82: TOTAL: \$40,932
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McLaughlin, D. K. LARC/Seiner, J. M. 41-Aero Engr

NAG 2-76 Oklahoma State University 4117
Correlation of transonic-cone preston-tube data and skin friction
Period *Obligations*
11/01/80-01/31/83 FY82: \$6,000 TOTAL: \$60,210
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reed, T. D. ARC/Steinle, F. W., Jr. 41-Aero Engr

NAG 3-74 Oklahoma State University 4118
Investigations of flow fields found in typical combustor geometries
Period *Obligations*
07/01/80-07/29/83 FY82: \$60,160 TOTAL: \$201,390
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lilley, D. G. LERC/Holderman, J. D. 46-Mech Engr
McLaughlin, D. K.

NAGW 26 Oklahoma State University 4119
Microbial ecology of extreme environments: Antarctic dry valley yeasts and growth in substrate-limited habitats
Period *Obligations*
12/01/79-02/28/83 FY82: \$52,100 TOTAL: \$146,632
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vishniac, H. S. HQ-EB/Geib, D. S. 51-Biological Sci

NAS 2-10467 Oklahoma State University 4120
Operation of a visitor, tour, and an aeronautical research information and communication program
Period *Obligations*
12/01/79-11/30/81 FY82: \$93,068 TOTAL: \$310,142
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wiggins, K. E. ARC/Miller, S. A. 41-Aero Engr
ARC/Ferrick, C. J.

NAS 6-3103 Oklahoma State University 4121
Mini-tracker ranging system
Period *Obligations*
05/12/80-11/11/81 FY82: TOTAL: \$378,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fike, R. M. GSFC/Boykin, F. M. 49-Engr, NEC
WFC/West, W. W.

NASW 3313 Oklahoma State University 4122
Spacemobile operation and management of aerospace education services project
Period *Obligations*
10/01/79-09/30/81 FY82: \$1,433,880 TOTAL: \$3,559,286
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wiggins, K. HQ-LC/Graves, C. M. 99-Multi-Discip
HQ-LC/Bilbrough, L. B.

NAS13-184 Oklahoma State University 4123
Development of LANDSAT/geobased information system requirements for substate demonstration project
Period *Obligations*
09/01/81-08/31/82 FY82: TOTAL: \$17,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walsh, S. J. NSTL/Barlow, R. M. 32-Geological Sci

NSG 6018 Oklahoma State University 4124
Investigation for improved precision in aerial application equipment
Period *Obligations*
10/01/77-09/30/81 FY82: TOTAL: \$164,737
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roth, L. O. GSFC/Carr, R. E. 49-Engr, NEC
Whitney, R. W.

NSG 7640 Oklahoma State University 4125
Remote sensing applications to Oklahoma resources and environmental problems
Period *Obligations*
09/01/79-08/30/85 FY82: \$100,000 TOTAL: \$485,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walsh, S. J. HQ-EL/Tuyahov, A. J. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
OKLAHOMA (Continued)**

NASW 3180 Southeastern Oklahoma State Univ. 4126
Operation of a NASA industrial application center
Period *Obligations*
10/01/78-06/30/81 FY82: TOTAL: \$545,555
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oliver, R. HQ-ET/Bivins, R. G. 49-Engr, NEC

NASW 3498 Southeastern Oklahoma State Univ. 4127
Operation of Kerr industrial application center
Period *Obligations*
07/01/81-06/30/82 FY82: \$75,000 TOTAL: \$169,841
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harmon, J. HQ-ET/Bivins, R. G. 99-Multi-Discip
HQ-ET/Ault, L. A.

NASW 3659 Southeastern Oklahoma State Univ. 4128
Operation of the Kerr industrial application center
Period *Obligations*
07/01/82-06/30/83 FY82: \$172,322 TOTAL: \$172,322
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harmon, J. HQ-LG/Bivins, R. G. 99-Multi-Discip
HQ-LG/Ault, L. A.

NAG 9-18 Univ of Oklahoma - Health Science Ctr 4129
Inhibition by camp by lymphocyte plasma membrane endogenous phosphorylatin study
Period *Obligations*
06/01/81-07/31/83 FY82: \$20,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nordquist, R. JSC/Lucid, S. 56-Medical Sciences

NAS 2-10408 Univ of Oklahoma - Health Science Ctr 4130
Cosmos 1981 experiment: Carotid arterial flow and pressure measurement of primates
Period *Obligations*
10/01/79-07/31/83 FY82: \$9,368 TOTAL: \$99,368
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, H. L. ARC/Heinrich, M. R. 51-Biological Sci

NAS 2-10526 Univ of Oklahoma - Health Science Ctr 4131
Mechanism(s) underlying fluid volume shifts in zero-gravity
Period *Obligations*
01/17/80-11/30/81 FY82: TOTAL: \$37,825
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, H. L. ARC/Ferandin, J. 51-Biological Sci
ARC/Lee, R. D.

NAS 9-15994 Univ of Oklahoma - Health Science Ctr 4132
Investigation of inhibition by camp of lymphocyte plasma membrane endogenous phosphorylation
Period *Obligations*
11/01/79-06/01/81 FY82: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nordquist, R. E. JSC/Lucid, S. W. 51-Biological Sci

NCA 2-580101 Univ of Oklahoma - Health Science Ctr 4133
Cardiovascular response in the exercise-trained and exercise-conditioned dog
Period *Obligations*
07/01/81-06/30/83 FY82: \$21,000 TOTAL: \$32,144
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, H. L. ARC/Sandler, H. 51-Biological Sci

NCC 2-24 Univ of Oklahoma - Health Science Ctr 4134
Central and peripheral mechanisms underlying cardiovascular deconditioning in the unanesthetized primate
Period *Obligations*
11/01/79-10/31/82 FY82: \$90,000 TOTAL: \$238,225
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, H. L. ARC/Sandler, H. 59-Life Sci, NEC

NAG 8-372 University of Oklahoma - Norman 4135
Observations of the rapid variable AE AQR in the High Energy Astronomical Observatory-B guest investigator program
Period *Obligations*
09/15/80-09/14/83 FY82: TOTAL: \$5,892
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chincarini, G. MSFC/Stone, J. F. 11-Astronomy

NAS 8-34749 University of Oklahoma - Norman 4136
Analysis of lidar, radar and satellite measurements on severe thunderstorms and their environment
Period *Obligations*
04/27/82-04/26/84 FY82: \$72,141 TOTAL: \$72,141
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doviak, R. J. MSFC/Fitzjarrald, D. E. 31-Atmos Sci
Bluestins, H. B. MSFC/Fitchl, G. H.

NCA 2-580001 University of Oklahoma - Norman 4137
Basic studies of a rectangular jet impingement on the surface
Period *Obligations*
01/01/80-12/31/80 FY82: TOTAL: \$21,817
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krothapalli, A. ARC/Koenig, D. G. 41-Aero Engr

NCA 2-580901 University of Oklahoma - Norman 4138
Cardian function and exercise training
Period *Obligations*
07/01/79-06/30/81 FY82: TOTAL: \$43,061
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, H. L. ARC/Sandler, H. 51-Biological Sci

NCC 5-600 University of Oklahoma - Norman 4139
Determining the probability of lightning strikes to aircraft
Period *Obligations*
04/01/82-05/31/83 FY82: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nazur, V. GSFC/Gerlich, J. C. 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM
OREGON**

OREGON

NAG 1-160 Oregon Graduate Center 4140
Systematic global measurements of methane and carbon monoxide

<i>Period</i>	<i>Obligations</i>	
03/03/81-03/02/83	FY82: \$86,645	TOTAL: \$205,769
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rasmussen, R. A.	LARC/Reichle, H. G.	31-Atmos Sci
	Khalil, M. A.	

NAGW 280 Oregon Graduate Center 4141
Fluorocarbons, chlorocarbons, and nitrous oxide: Continuous measurements at 5 global sites

<i>Period</i>	<i>Obligations</i>	
12/01/81-11/30/82	FY82: \$172,342	TOTAL: \$172,342
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rasmussen, R. A.	HQ-EB/Chandra, S.	31-Atmos Sci
	HQ-EB/Watson, R. T.	

NGT 38-014-800 Oregon Graduate Center 4142
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$12,250	TOTAL: \$23,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elliott, R. A.	HQ-LB/Carter, C. H.	13-Physics

NSG 2387 Oregon Graduate Center 4143
Evaluation of turbulence induced noise in coherent anti-Stokes Raman scattering

<i>Period</i>	<i>Obligations</i>	
06/01/79-12/31/82	FY82: \$9,031	TOTAL: \$71,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Elliott, R. A.	ARC/McKenzie, R. L.	13-Physics

NSG 7457 Oregon Graduate Center 4144
Spatial and temporal variations in atmospheric carbon concentration

<i>Period</i>	<i>Obligations</i>	
05/01/78-01/31/82	FY82: \$299,148	TOTAL: \$299,148
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rasmussen, R. A.	HQ-EB/Watson, R. T.	31-Atmos Sci
	HQ-EB/Chandra, S.	

NAG 3-87 Oregon State University 4145
Wind turbine structural design and analysis

<i>Period</i>	<i>Obligations</i>	
07/15/80-08/12/83	FY82: \$43,000	TOTAL: \$128,732
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thresher, R. W.	LERC/Spera, D. A.	49-Engr, NEC
	LERC/Sullivan, T. L.	

NAG 3-278 Oregon State University 4146
Performance modeling for horizontal axis wind turbines

<i>Period</i>	<i>Obligations</i>	
04/25/82-10/24/83	FY82: \$79,878	TOTAL: \$79,878
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, R. E.	LERC/Savino, J. M.	42-Astro Engr

NAG 5-51 Oregon State University 4147

Investigation of small-scale terrain effects within climate models

<i>Period</i>	<i>Obligations</i>	
05/15/80-12/15/82	FY82: \$27,000	TOTAL: \$154,530
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deardorff, J. W.	GSFC/Shukla, J.	31-Atmos Sci

NAG 5-206 Oregon State University 4148

Diagnosis of seasonal climate change

<i>Period</i>	<i>Obligations</i>	
10/01/81-01/31/83	FY82: \$60,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gates, W. L.	GSFC/Shukla, J.	31-Atmos Sci
	Esbensen, S. K.	
	Kim, J. W.	

NAG 9-2 Oregon State University 4149

Neotectonics of Pakistan

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/83	FY82: \$35,000	TOTAL: \$135,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lawrence, R. D.	JSC/Phinney, W. C.	32-Geological Sci

NAGW 305 Oregon State University 4150

Airborne laser-fluorosensor evaluation of biologic logical properties in a coastal ocean region

<i>Period</i>	<i>Obligations</i>	
12/01/81-11/30/82	FY82: \$48,585	TOTAL: \$48,585
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Small, L. F.	HQ-EE/Carder, K. L.	33-Oceanography
	Frey, B. E.	HQ-EE/Wilson, W. S.

NAS 5-27369 Oregon State University 4151

Tectonic studies of the gulf of California

<i>Period</i>	<i>Obligations</i>	
09/30/82-09/30/83	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Couch, R. W.	GSFC/Mead, G. D.	32-Geological Sci
	Ness, G. E.	
	Fehler, M. C.	

NAS 9-14860 Oregon State University 4152

Assessment of the impact of increased solar ultraviolet radiation upon marine ecosystems

<i>Period</i>	<i>Obligations</i>	
10/08/75-12/07/80	FY82: \$300,000	TOTAL: \$300,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Worrest, R. C.	JSC/Nachtwey, D. S.	54-Env Biology

NCA 2-586001 Oregon State University 4153

Improving convergence to the steady state

<i>Period</i>	<i>Obligations</i>	
06/01/80-09/30/81	FY82: \$22,265	TOTAL: \$22,265
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jespersen, D. C.	ARC/Lomax, H.	21-Mathematics

**NASA'S UNIVERSITY PROGRAM
OREGON (Continued)**

NCA 2-586101 Oregon State University 4154
Cooperative development of improved computing capability for LANDSAT analysis

<i>Period</i>	<i>Obligations</i>	
04/01/81-01/31/82	FY82: \$2,875	TOTAL: \$15,875
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Isaacson, D. L.	ARC/Wilson, D. E.	39-Env Sci, NEC

NAG 2-7 University of Oregon - Eugene 4161
Hydrodynamics and turbulence in quantum fluids

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/81	FY82:	TOTAL: \$120,332
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Donnelly, R.	ARC/Brooks, W. ARC/Lum, H.	13-Physics

NCA 2-586201 Oregon State University 4155
Vegetation classification and map of the central Siskiyou Mountains, Oregon

<i>Period</i>	<i>Obligations</i>	
10/15/81-10/14/83	FY82: \$16,000	TOTAL: \$16,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frenkel, R. E.	ARC/Norman, S. D.	32-Geological Sci

NAG 2-131 University of Oregon - Eugene 4162
Tests of a derivative spectrometer for detecting low-mass stellar companions

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/31/82	FY82:	TOTAL: \$16,891
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kemp, J. C.	ARC/Black, D. C.	11-Astronomy

NGL 38-002-039 Oregon State University 4156
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
01/19/71-01/31/83	FY82: \$68,000	TOTAL: \$769,981
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schmitt, R. A.	JSC/Dietrich, J. W.	13-Physics

NAGW 222 University of Oregon - Eugene 4163
Far infrared measurements of trace constituents

<i>Period</i>	<i>Obligations</i>	
07/15/81-07/14/83	FY82: \$86,403	TOTAL: \$223,537
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nolt, I. G. Radostitz, J. V.	HQ-EE/Chandra, S. HQ-EE/Watson, R. T.	31-Atmos Sci

NGL 38-002-053 Oregon State University 4157
Development and operation of an environmental remote sensing applications laboratory

<i>Period</i>	<i>Obligations</i>	
03/16/72-03/31/85	FY82: \$150,000	TOTAL: \$1,475,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schrumpf, B. J.	HQ-EL/Tuyahov, A. J.	39-Env Sci, NEC

NCA 2-587201 University of Oregon - Eugene 4164
Far infrared observations of bok golbules and dark clouds

<i>Period</i>	<i>Obligations</i>	
04/01/82-12/31/82	FY82: \$1,000	TOTAL: \$1,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nolt, I. G.	ARC/Caroff, L. J. ARC/Black, D. C.	11-Astronomy

NSG 5308 Oregon State University 4158
Analyses of the surface heat balance over the world ocean

<i>Period</i>	<i>Obligations</i>	
12/01/78-09/30/81	FY82:	TOTAL: \$95,671
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Esbensen, S.	GSFC/Halem, M.	31-Atmos Sci

NGL 38-003-022 University of Oregon - Eugene 4165
Lunar sample analysis

<i>Period</i>	<i>Obligations</i>	
02/09/71-04/30/82	FY82:	TOTAL: \$701,892
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weill, D. F.	JSC/Warner, J. L.	13-Physics

NSG 5353 Oregon State University 4159
Numerical simulation of large scale ocean atmosphere coupling and the ocean's role in climate

<i>Period</i>	<i>Obligations</i>	
05/01/79-12/14/82	FY82:	TOTAL: \$580,259
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gates, W. L.	GSFC/Halem, M.	31-Atmos Sci

NGR 38-003-020 University of Oregon - Eugene 4166
Inspection of petrologically significant physical and chemical properties of the silicate melts

<i>Period</i>	<i>Obligations</i>	
06/01/70-02/28/83	FY82:	TOTAL: \$655,671
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weill, D. F.	HQ-EL/Quaide, W. L.	32-Geological Sci

NSG 7178 Oregon State University 4160
Examination of the suggested modes of origin of channels found on the Moon and Mars

<i>Period</i>	<i>Obligations</i>	
01/01/76-01/31/83	FY82: \$32,280	TOTAL: \$176,356
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Komar, P. D.	HQ-EL/Boyce, J. M. HQ-EL/Holt, H. E.	32-Geological Sci

NSG 7639 University of Oregon - Eugene 4167
Spectrum of the continuous gravitational radiation background

<i>Period</i>	<i>Obligations</i>	
09/30/79-09/30/81	FY82:	TOTAL: \$23,246
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zimmerman, R. L.	HQ-EZ/Weiler, E. J. HQ-EZ/Bogges, N. W.	11-Astronomy

**NASA'S UNIVERSITY PROGRAM
OREGON (Continued)**

NAS 8-33575 University of Oregon-Health Sci. Ctr. 4168
Counter current distribution of biologic cells

<i>Period</i>	<i>Obligations</i>	
11/16/78-11/15/82	FY82: \$41,413	TOTAL: \$226,413
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brooks, D. E.	MSFC/Moore, W. W., Jr.	
	MSFC/Synder, R. S.	47-Materials Engr

NAS 1-16125 Carnegie - Mellon University 4175
Study to evaluate the use of an optical pattern recognition system

<i>Period</i>	<i>Obligations</i>	
02/28/80-05/12/81	FY82:	TOTAL: \$39,820
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Casasent, D.	LARC/Wilson, R. G.	45-Elec Engr
	LARC/Howell, W. E.	

PENNSYLVANIA

NAG 1-190 Carnegie - Mellon University 4169
Advanced automated control of aircraft in terminal

<i>Period</i>	<i>Obligations</i>	
06/01/81-09/30/82	FY82:	TOTAL: \$39,738
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Siewiorek, D. P.	LARC/Lupton, A. O.	45-Elec Engr
	LARC/Palumbo, D. L.	

NASW 3673 Carnegie - Mellon University 4176
Exploratory research on robust inventory models

<i>Period</i>	<i>Obligations</i>	
08/16/82-11/15/82	FY82: \$24,051	TOTAL: \$24,051
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leinhardt, S.	HQ-NS/Fontaine, M.	21-Mathematics

NAG 1-265 Carnegie - Mellon University 4170
Novel wind-tunnel data processing

<i>Period</i>	<i>Obligations</i>	
05/01/82-03/31/83	FY82: \$49,872	TOTAL: \$49,872
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Casasent, D.	LARC/Hendricks, H. D.	
	LARC/Magee, C. J.	19-Phys Sci, NEC

NGT 39-087-800 Carnegie - Mellon University 4177
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$13,000	TOTAL: \$25,590
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fix, G. J.	HQ-LB/Carter, C. H.	46-Mech Engr

NAG 3-5 Carnegie - Mellon University 4171
Electro-optical system controller and processor

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/30/85	FY82: \$340,913	TOTAL: \$500,820
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Casasent, D.	LERC/Baumbick, R. J.	45-Elec Engr
	LERC/Sellers, J. F.	

NGT 39-087-801 Carnegie - Mellon University 4178
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$13,000	TOTAL: \$13,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swedlow, J. L.	HQ-LB/Carter, C. H.	46-Mech Engr

NAG 3-21 Carnegie - Mellon University 4172
Formulate a multi-dimensional, unsteady, turbulent, compressible, reacting flow code for Otto cycle codes and engines

<i>Period</i>	<i>Obligations</i>	
12/15/79-10/29/83	FY82: \$103,137	TOTAL: \$243,118
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramos, J. I.	LERC/Shih, T.	46-Mech Engr
	LERC/Shock, H. J.	

NSG 3172 Carnegie - Mellon University 4179
Evaluation of failure mechanics in composites

<i>Period</i>	<i>Obligations</i>	
12/01/77-12/01/81	FY82:	TOTAL: \$135,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Swedlow, J. L.	LERC/Srawley, J. E.	46-Mech Engr
Baumann, K. J.	LERC/Brown, W. F., Jr.	

NAG 3-166 Carnegie - Mellon University 4173
Turbulent flow in cryogenic face seals

<i>Period</i>	<i>Obligations</i>	
03/15/81-03/13/83	FY82: \$37,000	TOTAL: \$75,155
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hughes, W. F.	LERC/Hendricks, R. C.	46-Mech Engr

NSG 7585 Carnegie - Mellon University 4180
Iron-60 as a heat source and chronometer in early solar system

<i>Period</i>	<i>Obligations</i>	
05/01/79-04/30/83	FY82:	TOTAL: \$183,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kohman, T. P.	HQ-EL/Hartung, J.	32-Geological Sci

NAG 3-231 Carnegie - Mellon University 4174
Simulation of aerodynamic damping/mistuning friction interaction in bladed disc vibration

<i>Period</i>	<i>Obligations</i>	
12/05/81-12/04/82	FY82: \$57,829	TOTAL: \$57,829
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Griffin, J. H.	LERC/Kielb, R. E.	41-Aero Engr
Sinha, A.		

NAG 1-110 Drexel University 4181
Rigorous analytical theory for boundary-free incompressible fluid and homogeneous turbulence

<i>Period</i>	<i>Obligations</i>	
11/01/80-10/31/82	FY82: \$42,000	TOTAL: \$82,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rosen, G. H.	LARC/Gatski, T. B.	46-Mech Engr
	LARC/Shoosmith, J. N.	

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NAG 1-200 **Drexel University** **4182**
 Research on atmospheric volcanic emissions
Period *Obligations*
 06/01/81-05/31/83 FY82: \$97,000 TOTAL: \$252,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Friend, J. P. LARC/Fuller, W. H., Jr. 31-Atmos Sci
 Zoller, W. H. LARC/McMaster, L. R.

NAG 3-183 **Drexel University** **4189**
 Thermal stability of distillate hydrocarbon convergent-divergent nozzles
Period *Obligations*
 10/01/81-06/29/83 FY82: \$70,000 TOTAL: \$130,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cohen, R. S. LERC/Bittker, D. A. 12-Chemistry
 Cernansky, N. P.

NAG 1-243 **Drexel University** **4183**
 Research on singular perturbation methods for the output feedback problem
Period *Obligations*
 01/01/82-12/31/82 FY82: \$52,175 TOTAL: \$52,175
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Calise, A. J. LARC/Price, D. B. 41-Aero Engr

NAG 5-208 **Drexel University** **4190**
 Lower atmospheric composition of Jupiter from Voyager infrared measurements
Period *Obligations*
 09/15/81-09/14/83 FY82: \$13,800 TOTAL: \$26,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Abbas, M. M. GSFC/Maguire, W. C. 11-Astronomy
 GSFC/Kunde, V. G.

NAG 1-247 **Drexel University** **4184**
 Computer aided design and manufacturing (CAD/CAM) support to the total wheelchair project
Period *Obligations*
 01/01/82-12/31/82 FY82: \$44,738 TOTAL: \$44,738
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rogers, V. A. LARC/Baucom, R. M. 49-Engr, NEC
 LARC/Fulton, R. E.

NAGW 84 **Drexel University** **4191**
 Rave research on atmospheric volcanic emissions
Period *Obligations*
 05/01/80-08/31/81 FY82: TOTAL: \$154,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Friend, J. P. LARC/Fuller, W. H. 31-Atmos Sci

NAG 2-8 **Drexel University** **4185**
 Application of variable structure system theory to aircraft flight control
Period *Obligations*
 01/01/80-09/30/82 FY82: TOTAL: \$112,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Calise, A. J. ARC/Meyer, G. 49-Engr, NEC

NAS 1-14393 **Drexel University** **4192**
 Science support for the limb infrared monitor of the stratosphere experiment
Period *Obligations*
 04/01/76-09/30/82 FY82: \$22,000 TOTAL: \$128,556
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 House, F. B. LARC/Sullivan, E. M. 31-Atmos Sci
 LARC/Russell, J. M.

NAG 2-10 **Drexel University** **4186**
 Experiments in the formation of aerosols by photo-oxidation of sulfur dioxide
Period *Obligations*
 01/01/80-12/31/82 FY82: TOTAL: \$57,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Friend, J. P. ARC/Farlow, N. H. 31-Atmos Sci

NAS 1-16428 **Drexel University** **4193**
 Scientific investigations for the Earth radiation budget experiment (ERBE)
Period *Obligations*
 09/17/80-09/17/85 FY82: \$60,000 TOTAL: \$98,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 House, F. B. LARC/Hall, J. B., Jr. 31-Atmos Sci
 LARC/Barkstrom, B. R.

NAG 3-1 **Drexel University** **4187**
 Pollutant formation in monodisperse fuel spray combustion
Period *Obligations*
 11/01/79-10/29/82 FY82: TOTAL: \$171,193
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cernansky, N. P. LERC/Humenik, F. 41-Aero Engr

NAS 5-26794 **Drexel University** **4194**
 Nimbus Earth radiation belt study
Period *Obligations*
 11/10/81-11/10/83 FY82: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 House, F. B. GSFC/Kyle, H. L. 31-Atmos Sci
 GSFC/Hurley, E. J.

NAG 3-14 **Drexel University** **4188**
 Microstructure and fatigue behavior of rheocast IN-100
Period *Obligations*
 02/01/80-03/02/83 FY82: \$74,646 TOTAL: \$169,495
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Apelian, D. LERC/Glasgow, T. K. 47-Materials Engr
 LERC/Gray, H. R.

NAS 8-34833 **Drexel University** **4195**
 Implementation of limited area and mesoscale prediction system software
Period *Obligations*
 09/20/82-09/19/83 FY82: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 S'cnafer, A. MSFC/Wilson, G. S. 31-Atmos Sci
 Kreitzberg, C. MSFC/Arnold, J. E.
 Perkey, D. J.

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NAS 9-15915 Drexel University 4196
Bone growth and alteration via endosseous implants
Period Obligations
07/01/79-12/01/82 FY82: TOTAL: \$80,000
Prin. Invest. NASA Tech. Officer CASE Category
Kamel, I. L. JSC/Altchuler, S. I. 56-Medical Sciences

NSG 6035 Drexel University 4203
A study of optimal electrode preparation for the electrochemical concentration cell ozonesonde
Period Obligations
07/01/79-11/30/82 FY82: \$14,992 TOTAL: \$20,592
Prin. Invest. NASA Tech. Officer CASE Category
Thornton, D. C. GSFC/Torres, A. L. 12-Chemistry

NCC 1-33 Drexel University 4197
Infrared heterodyne observation of the stratosphere from balloon based platform
Period Obligations
01/09/80-01/08/82 FY82: TOTAL: \$40,000
Prin. Invest. NASA Tech. Officer CASE Category
Abbas, M. M. LARC/Allario, F. 31-Atmos Sci
House, F. B. LARC/Alvarez, J. M.

NCA 2-270201 Hahnemann Medical College & Hospital 4204
The intrinsic organization of the vestibular complex in rat: Further characterization of internuclear connectivity
Period Obligations
01/01/82-01/01/83 FY82: \$10,000 TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Rubertone, J. A. ARC/Mehler, W. R. 51-Biological Sci

NSG 1496 Drexel University 4198
Research on singular perturbation techniques for on-line optimal control
Period Obligations
02/01/78-12/31/81 FY82: TOTAL: \$137,918
Prin. Invest. NASA Tech. Officer CASE Category
Calise, A. J. LARC/Price, D. B. 41-Aero Engr

NCC 6-3214 Indiana University of Pennsylvania 4205
Redesign of the photomultiplier tube power supply for the airborne oceanographic lidar
Period Obligations
07/15/81-08/31/82 FY82: TOTAL: \$4,723
Prin. Invest. NASA Tech. Officer CASE Category
Berry, R. E. GSFC/Hoge, F. E. 19-Phys Sci, NEC
WFC/McGoogan, J. T.

NSG 1545 Drexel University 4199
Development of a climate model using a time dependent energy balance formulation
Period Obligations
07/01/78-10/31/80 FY82: TOTAL: \$44,600
Prin. Invest. NASA Tech. Officer CASE Category
House, F. B. LARC/Smith, G. L. 31-Atmos Sci
Jafolla, J. C.

NAG 1-45 Lafayette College 4206
Ultrasonic ranging for the oculometer
Period Obligations
03/01/80-04/30/82 FY82: TOTAL: \$25,850
Prin. Invest. NASA Tech. Officer CASE Category
Guy, W. J. LARC/Gainer, P. A. 49-Engr, NEC

NSG 1606 Drexel University 4200
Deformation characteristics and failure modes of notched graphite polyimide composites at room and elevated temperatures
Period Obligations
07/01/79-12/31/82 FY82: TOTAL: \$114,900
Prin. Invest. NASA Tech. Officer CASE Category
Awerbuch, J. LARC/Poe, C. C., Jr. 47-Materials Engr
Kamel, I. L. LARC/Kennedy, J. M.

NAG 3-135 Lehigh University 4207
Coupled wake-oscillator models for mistuned blade flutter
Period Obligations
12/08/80-09/07/83 FY82: TOTAL: \$99,010
Prin. Invest. NASA Tech. Officer CASE Category
Johnson, S. H. LERC/Lubomski, J. F. 46-Mech Engr
Owczarek, J. A.

NSG 2357 Drexel University 4201
Feasibility studies for light scattering experiments in space to determine the velocity relaxation of small particles in a fluid
Period Obligations
01/01/79-12/31/82 FY82: \$74,000 TOTAL: \$200,000
Prin. Invest. NASA Tech. Officer CASE Category
Acquista, C. A. ARC/Brooks, W. F. 13-Physics
Narducci, L. ARC/Lum, H.

NAG 8-355 Lehigh University 4208
Interacting close binary systems
Period Obligations
06/27/80-06/30/82 FY82: TOTAL: \$6,118
Prin. Invest. NASA Tech. Officer CASE Category
McCluskey, G. E. MSFC/Swearingen, J. C. 11-Astronomy
Stengle, G. A.

NSG 6007 Drexel University 4202
Electrochemical concentration cell ozonesonde performance tests
Period Obligations
05/01/76-03/31/82 FY82: TOTAL: \$116,030
Prin. Invest. NASA Tech. Officer CASE Category
Bandy, A. R. GSFC/Holland, A. C. 31-Atmos Sci

NAS 8-32951 Lehigh University 4209
Experiment for materials processing in space production of large particle size monodisperse latexes
Period Obligations
02/22/78-02/22/83 FY82: \$120,000 TOTAL: \$531,315
Prin. Invest. NASA Tech. Officer CASE Category
Van Derhoff, J. W. MSFC/Moore, W. W., Jr. 13-Physics
MSFC/Kornfeld, D. M.

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NAG 2-176 **Pennsylvania State Univ. - Univ. Park 4224**
 Heterogeneous chemistry: Association reactions, cluster formation and surface phenomena pertaining to aerosol climatic effects

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$39,000	TOTAL: \$39,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Castleman, W. A., Jr.	ARC/Pollack, J. B.	12-Chemistry
	ARC/Whitten, R. C.	

NAG 3-88 **Pennsylvania State Univ. - Univ. Park 4225**
 Ceramic materials for high-temperature pressure transducers

<i>Period</i>	<i>Obligations</i>	
05/20/80-12/17/82	FY82: \$80,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bradt, R. C.	LERC/Barranger, J. P.	47-Materials Engr

NAG 3-91 **Pennsylvania State Univ. - Univ. Park 4226**
 The utilization of alternate fuels in diesel engines

<i>Period</i>	<i>Obligations</i>	
09/01/80-09/02/83	FY82: \$127,715	TOTAL: \$279,064
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lestz, S. S.	LERC/Clark, J. S.	46-Mech Engr

NAG 3-177 **Pennsylvania State Univ. - Univ. Park 4227**
 Vapor phase crystal growth of silicon carbide

<i>Period</i>	<i>Obligations</i>	
04/05/81-04/03/83	FY82: \$40,045	TOTAL: \$90,022
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spear, K. E.	LERC/Powell, J. A.	47-Materials Engr

NAG 3-190 **Pennsylvania State Univ. - Univ. Park 4228**
 Structure of evaporating and combusting pressure atomized sprays: Measurements and predictions

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/30/83	FY82: \$55,296	TOTAL: \$107,473
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Faeth, G. M.	LERC/Tacina, R. R.	46-Mech Engr

NAG 3-264 **Pennsylvania State Univ. - Univ. Park 4229**
 Fatigue damage under a complex loading system

<i>Period</i>	<i>Obligations</i>	
03/05/82-02/04/83	FY82: \$46,221	TOTAL: \$46,221
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zamrik, S. Y.	LERC/Bill, R. C.	47-Materials Engr
Antolovich, S. D.		

NAG 5-49 **Pennsylvania State Univ. - Univ. Park 4230**
 Combined use of remote sensing and seismic observations to infer recent crust deformation, active faulting and stress fields

<i>Period</i>	<i>Obligations</i>	
05/01/80-11/30/82	FY82: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Kouns, C. W.	32-Geological Sci
Gold, D. P.		

NAG 5-60 **Pennsylvania State Univ. - Univ. Park 4231**
 Ultraviolet study of peculiar white dwarfs

<i>Period</i>	<i>Obligations</i>	
06/01/80-08/31/81	FY82: \$4,866	TOTAL: \$4,866
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wegner, G. A.	GSFC/Boggess, A.	11-Astronomy

NAG 5-77 **Pennsylvania State Univ. - Univ. Park 4232**
 Synthesis of regional crust and upper mantle structure from seismic and gravity data

<i>Period</i>	<i>Obligations</i>	
06/15/80-11/30/82	FY82: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Kouns, C. W.	32-Geological Sci
Lavin, P. M.		

NAG 5-100 **Pennsylvania State Univ. - Univ. Park 4233**
 High angular resolution X-ray and X-ray ultraviolet astronomy observations

<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/83	FY82: \$270,000	TOTAL: \$702,807
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmire, G. P.	GSFC/Early, L. J.	11-Astronomy
	GSFC/Pless, R. H.	

NAG 5-184 **Pennsylvania State Univ. - Univ. Park 4234**
 Development of an interactive method for remote determination of surface moisture patterns

<i>Period</i>	<i>Obligations</i>	
06/01/81-07/31/83	FY82: \$50,000	TOTAL: \$94,159
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carlson, T. N.	GSFC/Schmugge, T. J.	39-Env Sci, NEC
	GSFC/Rango, A.	

NAG 5-201 **Pennsylvania State Univ. - Univ. Park 4235**
 Wind-wind interactions in selective binaries

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/31/82	FY82: \$3,700	TOTAL: \$9,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ramsey, L.	GSFC/Boggess, A.	11-Astronomy

NAG 5-214 **Pennsylvania State Univ. - Univ. Park 4236**
 Observations of the ultraviolet spectra of carbon white dwarfs

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$9,500	TOTAL: \$9,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wegner, G. A.	GSFC/Boggess, A.	11-Astronomy

NAG 5-606 **Pennsylvania State Univ. - Univ. Park 4237**
 Stratospheric studies by satellite, rocket and balloon observations

<i>Period</i>	<i>Obligations</i>	
05/15/82-05/14/83	FY82: \$34,000	TOTAL: \$34,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Olivero, J. J.	GSFC/Schmidlin, F. J.	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
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NAG 6-7 Pennsylvania State Univ. - Univ. Park 4238
Investigate the influence of auroral energetic and electrodynamic coupling on middle atmosphere parameters

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$68,976	TOTAL: \$186,460
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mitchell, J. D.	GSFC/Early, L. J.	19-Phys Sci, NEC
Maynard, N. C.	GSFC/Pless, R. H.	
Goldberg, R. A.		

NAG 8-434 Pennsylvania State Univ. - Univ. Park 4239
HRI positioning of X-ray sources h1515+09

<i>Period</i>	<i>Obligations</i>	
05/24/82-05/23/83	FY82: \$2,400	TOTAL: \$2,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmire, G. P.	MSFC/Stone, J. F.	11-Astronomy
Nousek, J. A.		

NAGW 108 Pennsylvania State Univ. - Univ. Park 4240
Support of research in X-ray astronomy

<i>Period</i>	<i>Obligations</i>	
11/01/80-09/30/82	FY82:	TOTAL: \$40,974
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmire, G. P.	HQ-EZ/Kallizienski, L. J.	11-Astronomy

NAGW 127 Pennsylvania State Univ. - Univ. Park 4241
Collisionally induced sharp features in the vibration-rotation spectrum of HO

<i>Period</i>	<i>Obligations</i>	
01/01/81-09/30/83	FY82: \$15,000	TOTAL: \$44,378
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Herman, R. M.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAS 5-25667 Pennsylvania State Univ. - Univ. Park 4242
Development and evaluation of remote sensing techniques for soil surveys

<i>Period</i>	<i>Obligations</i>	
05/21/79-12/30/81	FY82:	TOTAL: \$9,993
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petersen, G. W.	GSFC/Irons, J.	39-Env Sci, NEC

NAS 5-26166 Pennsylvania State Univ. - Univ. Park 4243
Development of computer software to analyze entire LANDSAT scenes and to summarize classification results of variable size polygons

<i>Period</i>	<i>Obligations</i>	
06/23/80-04/30/81	FY82:	TOTAL: \$37,784
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Turner, B.	GSFC/Dottavio, C. L.	22-Computer Science
	GSFC/Williams, D. L.	

NAS 5-26215 Pennsylvania State Univ. - Univ. Park 4244
Chemical analysis of vegetation samples

<i>Period</i>	<i>Obligations</i>	
07/11/80-01/11/83	FY82: \$24,500	TOTAL: \$50,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, C. B.	GSFC/Labovitz, M. L.	32-Geological Sci
Baker, D. E.	GSFC/Masuoka, E. J.	

NAS 5-26323 Pennsylvania State Univ. - Univ. Park 4245
Remote sensing data analysis support

<i>Period</i>	<i>Obligations</i>	
09/16/80-09/15/83	FY82: \$20,668	TOTAL: \$61,405
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Turner, B. J.	GSFC/Labovitz, M. L.	99-Multi-Discip
	GSFC/Irons, J.	

NAS 5-26456 Pennsylvania State Univ. - Univ. Park 4246
Interactive initialization of heat flux parameters for numerical models using satellite temperature

<i>Period</i>	<i>Obligations</i>	
03/10/81-12/31/82	FY82:	TOTAL: \$35,682
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carlson, T. N.	GSFC/Oseroff, H.	31-Atmos Sci

NAS 5-26468 Pennsylvania State Univ. - Univ. Park 4247
Develop/implement a data management system for use with a LANDSAT based information system

<i>Period</i>	<i>Obligations</i>	
02/01/81-09/30/82	FY82: \$48,841	TOTAL: \$138,164
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Turner, B. J.	GSFC/Dottavio, C. L.	99-Multi-Discip
	GSFC/Williams, D. L.	

NAS 5-26545 Pennsylvania State Univ. - Univ. Park 4248
Study of solar flux and absorption

<i>Period</i>	<i>Obligations</i>	
05/22/81-09/30/81	FY82:	TOTAL: \$3,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nesbit, J. F.	GSFC/Reed, E. I.	31-Atmos Sci

NAS 5-26612 Pennsylvania State Univ. - Univ. Park 4249
Delineation of soil temperature regimes from heat capacity mapping mission (HCMM) data

<i>Period</i>	<i>Obligations</i>	
12/02/81-01/31/83	FY82:	TOTAL: \$39,479
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Petersen, G. W.	GSFC/Oseroff, H.	32-Geological Sci

NAS 5-26652 Pennsylvania State Univ. - Univ. Park 4250
Remote sensing data analysis support

<i>Period</i>	<i>Obligations</i>	
08/19/81-08/18/83	FY82: \$6,856	TOTAL: \$18,855
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Turner, B. J.	GSFC/Labovitz, M. L.	99-Multi-Discip

NAS 5-26809 Pennsylvania State Univ. - Univ. Park 4251
HEAO-1 A-2 low energy data analysis

<i>Period</i>	<i>Obligations</i>	
11/15/81-05/15/83	FY82: \$69,000	TOTAL: \$69,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Garmire, G. P.	GSFC/Bullock, G.	11-Astronomy

NAS 6-2726 Pennsylvania State Univ. - Univ. Park 4252
Stratosphere and mesosphere structure and circulation studies

<i>Period</i>	<i>Obligations</i>	
03/04/76-01/31/82	FY82:	TOTAL: \$158,219
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Olivero, J.	GSFC/Duke, J. R.	31-Atmos Sci
	WFC/Schmidlin, F. J.	

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PENNSYLVANIA (Continued)**

NAS 8-33794 Pennsylvania State Univ. - Univ. Park 4253
Utilization of satellite data and dynamics in understanding global weather phenomena

<i>Period</i>	<i>Obligations</i>	
08/15/80-08/15/83	FY82: \$88,000	TOTAL: \$256,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, J. H.	MSFC/Kaufman, J. W.	31-Atmos Sci
Dutton, J. A.	MSFC/Fichtl, G. H.	

NCC 3-9 Pennsylvania State Univ. - Univ. Park 4260
Interdisciplinary collaboration on tribology

<i>Period</i>	<i>Obligations</i>	
05/19/80-06/28/83	FY82: \$50,162	TOTAL: \$124,601
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Klaus, E. E.	LERC/Loomis, W. R.	46-Mech Engr
Nagarajan, R.	LERC/Wedeven, L. D.	

NAS 8-33797 Pennsylvania State Univ. - Univ. Park 4254
Application of satellite data to study effect of latent heat release on cyclone

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/83	FY82: \$72,132	TOTAL: \$203,931
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clark, J. H.	MSFC/Fichtl, G. H.	31-Atmos Sci
	MSFC/Kaufman, J. W.	

NCC 5-19 Pennsylvania State Univ. - Univ. Park 4261
Synthesis of regional crust and upper mantle structure from seismic and gravity data

<i>Period</i>	<i>Obligations</i>	
06/15/79-12/31/80	FY82:	TOTAL: \$52,670
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alexander, S. S.	GSFC/Allenby, R. J.	32-Geological Sci

NAS 8-34535 Pennsylvania State Univ. - Univ. Park 4255
Study of pump cavitation damage

<i>Period</i>	<i>Obligations</i>	
09/28/81-02/27/83	FY82: \$100,000	TOTAL: \$125,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Billet, M. L.	MSFC/Wilmer, G., Jr.	46-Mech Engr
	MSFC/Gross, L. A.	

NGL 39-009-003 Pennsylvania State Univ. - Univ. Park 4262
Research on electron densities in upper ionosphere, including studies of rocket and separating capsule experimental techniques

<i>Period</i>	<i>Obligations</i>	
03/01/61-11/30/82	FY82: \$112,374	TOTAL: \$2,650,035
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nisbet, J. S.	HQ-EZ/Lynch, J. T.	13-Physics
	HQ-EZ/Schmerling, E. R.	

NAS 9-15566 Pennsylvania State Univ. - Univ. Park 4256
Purification and cultivation of human pituitary growth hormone secreting cells

<i>Period</i>	<i>Obligations</i>	
05/01/78-12/01/82	FY82:	TOTAL: \$265,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Humen, W. C.	JSC/Morrison, D. R.	51-Biological Sci

NGL 39-009-010 Pennsylvania State Univ. - Univ. Park 4263
Research to establish criteria for recognition of ancient meteorite impact craters whose characteristic surface forms have been obliterated by erosion

<i>Period</i>	<i>Obligations</i>	
08/08/63-12/31/80	FY82:	TOTAL: \$169,563
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gold, D. P.	HQ-EL/Quaide, W. L.	32-Geological Sci

NAS 9-15584 Pennsylvania State Univ. - Univ. Park 4257
Kidney cell electrophoresis

<i>Period</i>	<i>Obligations</i>	
09/01/81-03/01/83	FY82: \$60,000	TOTAL: \$284,779
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Todd, P. W.	JSC/Morrison, D.	51-Biological Sci

NGT 39-009-800 Pennsylvania State Univ. - Univ. Park 4264
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-05/31/83	FY82: \$13,000	TOTAL: \$34,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nisbet, J. S.	HQ-LB/Carter, C. H.	13-Physics

NCA 2-589001 Pennsylvania State Univ. - Univ. Park 4258
Modeling of African dust

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/82	FY82: \$21,524	TOTAL: \$39,849
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carlson, T. N.	ARC/Toon, O. B.	32-Geological Sci
Seaman, N.		

NGT 39-009-801 Pennsylvania State Univ. - Univ. Park 4265
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$26,000	TOTAL: \$37,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carlson, T. N.	HQ-LB/Carter, C. H.	19-Phys Sci, NEC

NCA 2-589101 Pennsylvania State Univ. - Univ. Park 4259
Physiological studies of two growth hormone secreting cell types and characterization of their secretions

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$30,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hymer, W.	ARC/Grindeland, R.	51-Biological Sci

NGT 39-009-802 Pennsylvania State Univ. - Univ. Park 4266
Training program in computational fluid dynamics

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/82	FY82: \$100,000	TOTAL: \$175,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	HQ-RT/Graves, R. A., Jr.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)**

NGT 39-009-803 Pennsylvania State Univ. - Univ. Park 4267
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/31/83	FY82: \$12,800	TOTAL: \$25,350
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alexander, S. S.	HQ-LB/Carter, C. H.	32-Geological Sci

NSG 3265 Pennsylvania State Univ. - Univ. Park 4275
The large scale structure of turbulence in a rotor wake

<i>Period</i>	<i>Obligations</i>	
07/01/79-10/27/82	FY82: \$39,992	TOTAL: \$152,630
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morris, P. J.	LERC/Englert, G. W.	41-Aero Engr

NGT 39-009-804 Pennsylvania State Univ. - Univ. Park 4268
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$13,000	TOTAL: \$13,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Usher, P. D.	HQ-LB/Carter, C. H.	13-Physics

NSG 3266 Pennsylvania State Univ. - Univ. Park 4276
Three dimensional flow field inside compressor rotor passages, including blade boundary layers

<i>Period</i>	<i>Obligations</i>	
06/26/79-10/19/82	FY82: \$65,522	TOTAL: \$227,649
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, P. M.	41-Aero Engr

NGT 39-009-805 Pennsylvania State Univ. - Univ. Park 4269
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$11,940	TOTAL: \$11,940
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Alexander, S. S.	HQ-LB/Carter, C. H.	13-Physics

NSG 3301 Pennsylvania State Univ. - Univ. Park 4277
Mass analysis of neutral particles and ions released during electrical breakdowns on spacecraft surfaces

<i>Period</i>	<i>Obligations</i>	
09/04/79-10/30/82	FY82: \$69,999	TOTAL: \$225,186
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kendall, B. R.	LERC/Staskus, J. V.	13-Physics
	LERC/Stevens, N. J.	

NSG 1580 Pennsylvania State Univ. - Univ. Park 4270
Broadbank jet noise amplification by a pure tone excitation

<i>Period</i>	<i>Obligations</i>	
12/01/78-05/31/82	FY82:	TOTAL: \$115,462
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morris, P. J.	LARC/Gatski, T. B.	41-Aero Engr
	LARC/Hardin, J. C.	

NSG 3304 Pennsylvania State Univ. - Univ. Park 4278
A study of interactive aerolastic and aerodynamic problems relating to general aviation propellers

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/30/81	FY82:	TOTAL: \$138,311
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCormick, B. W.	LERC/Mehmed, O.	41-Aero Engr

NSG 3012 Pennsylvania State Univ. - Univ. Park 4271
Compressor or fan rotor wake characteristics

<i>Period</i>	<i>Obligations</i>	
06/28/74-03/25/83	FY82:	TOTAL: \$308,510
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Shaw, L. M.	41-Aero Engr

NSG 3306 Pennsylvania State Univ. - Univ. Park 4279
An investigation of air solubility in jet fuel at high pressure

<i>Period</i>	<i>Obligations</i>	
09/01/79-08/31/81	FY82:	TOTAL: \$70,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Faeth, G. M.	LERC/Marer, C. J.	46-Mech Engr

NSG 3166 Pennsylvania State Univ. - Univ. Park 4272
Mapping of electrical potential distributions with charged particle beams

<i>Period</i>	<i>Obligations</i>	
11/01/77-02/28/82	FY82:	TOTAL: \$92,813
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Robinson, J. W.	LERC/Staskus, J. V.	13-Physics
	LERC/Stevens, N. J.	

NSG 5205 Pennsylvania State Univ. - Univ. Park 4280
Utilization of satellite data in mesoscale models

<i>Period</i>	<i>Obligations</i>	
09/01/77-03/31/83	FY82: \$54,998	TOTAL: \$225,930
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Warner, T.	GSFC/Uccellini, L. W.	31-Atmos Sci

NSG 3212 Pennsylvania State Univ. - Univ. Park 4273
End wall flows in rotors and stators of a single stage compressor

<i>Period</i>	<i>Obligations</i>	
08/01/78-11/19/82	FY82: \$60,130	TOTAL: \$266,395
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lakshminarayana, B.	LERC/Sockol, D. M.	41-Aero Engr

NSG 5212 Pennsylvania State Univ. - Univ. Park 4281
Study of high latitude thermospheric densities and flow patterns

<i>Period</i>	<i>Obligations</i>	
10/01/77-07/31/83	FY82:	TOTAL: \$77,012
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nisbet, J. S.	GSFC/Spencer, N. W.	13-Physics
Bleuler, E.		

NSG 3264 Pennsylvania State Univ. - Univ. Park 4274
The boundary layer on compressor cascade blades

<i>Period</i>	<i>Obligations</i>	
06/04/79-11/28/82	FY82:	TOTAL: \$231,132
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deutsch, S.	LERC/Sanger, N. L.	41-Aero Engr
Henderson, R.		

NSG 6004 Pennsylvania State Univ. - Univ. Park 4282
Studies of mesospheric ionization

<i>Period</i>	<i>Obligations</i>	
10/01/75-12/31/82	FY82: \$104,000	TOTAL: \$378,664
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hale, L. C.	GSFC/Early, L. J.	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM
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NAGW 242 Temple University 4283
The influence of varied gravito-inertial fields on the cardiac response of orb-weaving spiders
Period *Obligations*
09/01/81-10/31/83 FY82: \$16,169 TOTAL: \$26,130
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Finck, A. HQ-EB/Halstead, T. W. 51-Biological Sci

NAS 9-16634 University of Pennsylvania 4291
Software additions/modifications for OSDS man model development
Period *Obligations*
06/01/82-06/01/83 FY82: \$195,384 TOTAL: \$195,384
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Badler, N. I. JSC/Brown, J. W. 42-Astro Engr

NAS 9-14979 Temple University 4284
Ultraviolet-radiation induced skin cancer in experimental animals
Period *Obligations*
04/26/76-12/31/81 FY82: TOTAL: \$349,993
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Urback, F. JSC/Nachtwey, D. S. 56-Medical Sciences

NGR 39-010-149 University of Pennsylvania 4292
Plant morphogenesis under conditions of hypo and hypergravia
Period *Obligations*
09/01/73-10/31/82 FY82: \$19,999 TOTAL: \$474,934
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, A. H. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 5-92 University of Pennsylvania 4285
Research relative to synthetic aperture radiometry
Period *Obligations*
01/01/81-12/31/81 FY82: TOTAL: \$11,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kritikos, H. N. GSFC/Levine, D. M. 45-Elec Engr

NSG 3300 University of Pennsylvania 4293
Development of new intercalated cathode materials in use in sodium batteries
Period *Obligations*
10/01/79-12/14/81 FY82: TOTAL: \$127,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Worrell, W. L. LERC/Singer, J. 19-Phys Sci, NEC
Mehrotra, G.

NAS 5-27285 University of Pennsylvania 4286
Study of the fabrication and characterization of deep diode arrays
Period *Obligations*
06/21/82-08/21/83 FY82: \$51,000 TOTAL: \$51,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zemel, J. N. GSFC/Alcorn, G. E. 45-Elec Engr

NAG 2-53 University of Pittsburgh 4294
A survey of nearby stars for the perturbative effects of extrasolar planetary systems
Period *Obligations*
09/01/80-11/30/82 FY82: \$54,170 TOTAL: \$131,395
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gatewood, G. D. ARC/Black, D. C. 11-Astronomy

NAS 5-27353 University of Pennsylvania 4287
Satellite-borne array study for data collection platforms
Period *Obligations*
09/13/82-09/12/83 FY82: \$62,978 TOTAL: \$62,978
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haber, F. GSFC/Turkiewicz, J. 33-Oceanography

NAG 2-155 University of Pittsburgh 4295
Physiology of cat vestibular system efferent neurons
Period *Obligations*
01/15/82-01/14/83 FY82: \$90,000 TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tomko, D. L. ARC/Daunton, N. G. 51-Biological Sci
ARC/Suri, K.

NAS 8-33336 University of Pennsylvania 4288
Simultaneous X-ray and radio observation of extragalactic sources
Period *Obligations*
02/20/79-02/19/81 FY82: TOTAL: \$6,243
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shen, B. S. MSFC/Jones, J. B., Jr. 11-Astronomy
Johnston, K. J.

NAG 3-44 University of Pittsburgh 4296
Investigation into the role of NAC dependency on oxide and metal substrates in the initiation of hot corrosion
Period *Obligations*
04/01/80-03/30/83 FY82: TOTAL: \$59,970
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Birks, N. LERC/Kohl, F. J. 47-Materials Engr
LERC/Fielder, W. L.

NAS 9-15531 University of Pennsylvania 4289
Development phase for Spacelab experiment
Period *Obligations*
03/01/78-09/30/83 FY82: \$167,989 TOTAL: \$648,479
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, A. H. JSC/Peck, E. E. 59-Life Sci, NEC

NAG 5-249 University of Pittsburgh 4297
Observations of edge on seyferts
Period *Obligations*
08/01/82-07/31/83 FY82: \$2,871 TOTAL: \$2,871
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turnshek, D. A. GSFC/Kondo, Y. 11-Astronomy
Hazard, C.

NAS 9-16031 University of Pennsylvania 4290
Life sci fit exper protein metabolism
Period *Obligations*
01/17/80-09/30/82 FY82: \$14,309 TOTAL: \$26,847
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stein, T. D. JSC/McCollum, G. 59-Life Sci, NEC

**NASA'S UNIVERSITY PROGRAM
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NAG 5-609 **University of Pittsburgh** **4298**
Sounding rocket study of N₂O, NO, and other trace constituents in the upper stratosphere and mesosphere

<i>Period</i>	<i>Obligations</i>	
07/01/82-09/30/82	FY82: \$42,822	TOTAL: \$42,822
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zipf, E. C.	GSFC/Early, L. J.	13-Physics
Erdman, P. W.	GSFC/Pless, R. H.	

NGL 39-011-013 **University of Pittsburgh** **4305**
Investigation of airglow excitation mechanisms using atomic beam techniques

<i>Period</i>	<i>Obligations</i>	
04/26/65-12/31/82	FY82:	TOTAL: \$781,370
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fite, W. L.	HQ-EL/Brinton, H. C.	31-Atmos Sci

NAG 6-2 **University of Pittsburgh** **4299**
Studies of the physics and chemistry of the terrestrial atmosphere

<i>Period</i>	<i>Obligations</i>	
10/01/79-12/31/82	FY82: \$145,834	TOTAL: \$156,557
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zipf, E. C.	GSFC/Early, L. J.	19-Phys Sci, NEC
	WFC/Pless, R. H.	

NGL 39-011-030 **University of Pittsburgh** **4306**
Studies of excitation and collision deactivation of measurable A3 state of nitrogen in the aurora and day airglow

<i>Period</i>	<i>Obligations</i>	
05/07/65-04/30/83	FY82: \$75,000	TOTAL: \$1,229,886
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zipf, E. C.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAS 3-22662 **University of Pittsburgh** **4300**
Presentation of symposia and reports in advanced electrical propulsion

<i>Period</i>	<i>Obligations</i>	
09/23/80-09/24/82	FY82:	TOTAL: \$130,846
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McWilliams, P. A.	LERC/Kerslake, W. R.	42-Astro Engr

NGR 39-011-137 **University of Pittsburgh** **4307**
Dissociative recombination coefficients for planetary ionospheric ions

<i>Period</i>	<i>Obligations</i>	
07/28/71-05/31/83	FY82: \$47,994	TOTAL: \$392,558
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Biondi, M. A.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAS 5-25013 **University of Pittsburgh** **4301**
Study of infrared detection by intracavity upconversion

<i>Period</i>	<i>Obligations</i>	
05/09/78-06/30/83	FY82: \$25,358	TOTAL: \$221,862
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Falk, J.	GSFC/Kostiuk, T.	13-Physics
	GSFC/Ogilvie, K. W.	

NGR 39-011-161 **University of Pittsburgh** **4308**
Laboratory studies of kinetics of tropospheric and stratospheric aircraft pollutant reactions using atomic and molecular resonance fluorescence detection

<i>Period</i>	<i>Obligations</i>	
06/03/73-02/28/83	FY82: \$71,587	TOTAL: \$537,893
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kaufman, F.	HQ-EE/Watson, R. T.	12-Chemistry

NASW 3403 **University of Pittsburgh** **4302**
Operation of a NASA industrial application center (IAC)

<i>Period</i>	<i>Obligations</i>	
04/01/80-03/31/83	FY82: \$307,544	TOTAL: \$831,573
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McWilliams, P. A.	HQ-LG/Bivins, R. G.	
	HQ-LG/Ault, L. A.	22-Computer Science

NSG 2407 **University of Pittsburgh** **4309**
Theoretical studies of the electronic structure of small metal clusters

<i>Period</i>	<i>Obligations</i>	
10/01/79-03/31/82	FY82:	TOTAL: \$68,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jordan, K. D.	ARC/Cooper, D. M.	13-Physics

NASW 3571 **University of Pittsburgh** **4303**
Study various concepts for the development of a manned space station

<i>Period</i>	<i>Obligations</i>	
11/13/81-07/12/82	FY82: \$79,557	TOTAL: \$79,557
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fletcher, J. C.	HQ-AD/Culbertson, P. E.	41-Aero Engr
	HQ-LG/Finn, T. T.	

NSG 5270 **University of Pittsburgh** **4310**
Lithological characterization of crystalline basement rock provinces in the United States

<i>Period</i>	<i>Obligations</i>	
04/15/78-01/14/83	FY82:	TOTAL: \$64,756
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lidiak, E. G.	GSFC/Kouns, C. W.	32-Geological Sci

NCA 2-592901 **University of Pittsburgh** **4304**
Vestibular nuclei neutron activity in freely moving cats

<i>Period</i>	<i>Obligations</i>	
03/01/79-03/31/82	FY82: \$8,892	TOTAL: \$35,607
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tomko, D. L.	ARC/Daunton, N. G.	51-Biological Sci

NSG 7147 **University of Pittsburgh** **4311**
Photometric analyses of Mariner 10 images of Venus and Mercury

<i>Period</i>	<i>Obligations</i>	
06/23/75-11/30/83	FY82: \$25,203	TOTAL: \$206,122
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hapke, B.	HQ-EL/Boyce, J. M.	11-Astronomy
	HQ-EL/Holt, H. E.	

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PENNSYLVANIA (Continued)**

NSG 7631 University of Pittsburgh 4312
Measurement of reflectivities of rocks, minerals and glasses in the vacuum ultraviolet

<i>Period</i>	<i>Obligations</i>	
06/01/79-02/28/83	FY82: TOTAL: \$116,480	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hapke, B.	HQ-EL/Quaide, W. L.	32-Geological Sci

NAGW 137 Brown University 4319
Geologic processes on the Galilean satellites: Impace cratering, volcanism and tectonism volcanism and tectonism'

<i>Period</i>	<i>Obligations</i>	
03/01/81-02/28/83	FY82: \$82,000 TOTAL: \$161,997	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Head, J. W.	HQ-EL/Boyce, J. M.	42-Astro Engr
	HQ-EL/Holt, H. E.	

NAG 5-205 Villanova University 4313
Ultraviolet studies of nova-like variables

<i>Period</i>	<i>Obligations</i>	
10/01/81-09/30/82	FY82: \$6,194 TOTAL: \$12,694	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Guinan, E. F.	GSFC/Boggess, A.	11-Astronomy

NAS 5-26138 Brown University 4320
Electromagnetic deep-probing of the Earth's interior from artificial satellites: Constraints on the regional emplacement of crustal resources

<i>Period</i>	<i>Obligations</i>	
06/05/80-02/05/83	FY82: \$15,000 TOTAL: \$99,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hermance, J. F.	GSFC/Oseorff, H.	31-Atmos Sci

NAG 5-260 Villanova University 4314
High resolution ultraviolet studies of hot helium-rich white dwarfs

<i>Period</i>	<i>Obligations</i>	
08/01/82-07/31/83	FY82: \$11,600 TOTAL: \$11,600	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sion, E. M.	GSFC/Kondo, Y.	11-Astronomy
Guinan, E. F.		
Liebert, J.		

NAS 5-26729 Brown University 4321
Utilization of (HCMM) heat capacity mapping mission thermal data for the discrimination of volcanic and Eolian geological units

<i>Period</i>	<i>Obligations</i>	
09/21/81-01/31/84	FY82: TOTAL: \$65,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Head, J. W.	GSFC/Broderick, J. C.	32-Geological Sci
Mouginis-mark, P.		

NAS 1-16095 Villanova University 4315
Gust response of wide-bodied jet aircraft including autopilot studies

<i>Period</i>	<i>Obligations</i>	
01/29/80-10/14/81	FY82: TOTAL: \$35,563	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Goldberg, J. H.	LARC/Crabil, N. L.	41-Aero Engr
	LARC/Houbolt, J. C.	

NASW 3508 Brown University 4322
Support Brown University regional planetary data center

<i>Period</i>	<i>Obligations</i>	
04/14/81-10/31/82	FY82: \$15,800 TOTAL: \$30,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Head, J. W.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NSG 5375 Villanova University 4316
Ultraviolet observations of hot white dwarfs in binary systems

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/82	FY82: TOTAL: \$9,351	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Guinan, E. F.	GSFC/Boggess, A.	11-Astronomy
Sion, E. M.		

NGR 40-002-088 Brown University 4323
Analysis of Martian geologic features of Earth analogs

<i>Period</i>	<i>Obligations</i>	
10/20/69-12/31/82	FY82: \$129,000 TOTAL: \$922,336	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Head, J. W.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

RHODE ISLAND

NAG 1-258 Brown University 4317
Parameter estimation techniques for distributed systems

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$80,745 TOTAL: \$80,745	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Banks, H. T.	LARC/Armstrong, E. S.	21-Mathematics
	LARC/Taylor, L. W., Jr.	

NGR 40-002-116 Brown University 4324
Lunar basins processes and structure

<i>Period</i>	<i>Obligations</i>	
02/20/73-01/31/83	FY82: \$89,000 TOTAL: \$761,839	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Head, J. W.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAGW 28 Brown University 4318
Remote sensing information applied to geological studies of planets

<i>Period</i>	<i>Obligations</i>	
02/14/80-02/14/83	FY82: \$100,000 TOTAL: \$308,691	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pieters, C. M.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	

NGT 40-002-800 Brown University 4325
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-01/31/83	FY82: \$5,505 TOTAL: \$28,575	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Doepfner, T. W., Jr.	HQ-LB/Carter, C. H.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
RHODE ISLAND (Continued)**

NSG 1617 **Brown University** **4326**
Analytical and numerical gas dynamics
Period *Obligations*
06/01/79-05/31/83 FY82: \$43,204 TOTAL: \$162,731
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sirovich, L. LARC/Townsend, J. C. 41-Aero Engr

NSG 7569 **Brown University** **4327**
Analysis of rocks and substrate as revealed in Viking Lander images
Period *Obligations*
04/01/79-10/31/82 FY82: \$35,000 TOTAL: \$258,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Head, J. W. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Quaide, W. L.

NSG 7570 **Brown University** **4328**
Surface processes on Mars and its satellites with emphasis on cratering, volcanism and the evolution of Valles Marineris
Period *Obligations*
04/01/79-11/30/82 FY82: \$50,000 TOTAL: \$276,387
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Head, J. W. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

NSG 7589 **Brown University** **4329**
Experimental investigation of basalt-C-O-H-S gas equilibria and fumarolic alteration on Mars
Period *Obligations*
03/01/79-09/30/82 FY82: \$42,131 TOTAL: \$151,759
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rutherford, M. J. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Boyce, J. M.

NSG 7605 **Brown University** **4330**
Endogenic processes affect in the surfaces of Ganymede and Callisto
Period *Obligations*
05/01/79-04/30/83 FY82: \$40,980 TOTAL: \$165,166
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parmentier, E. M. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NAG 1-173 **University of Rhode Island** **4331**
Development of robots and applications to industrial processes
Period *Obligations*
06/01/81-05/31/83 FY82: \$25,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dally, J. W. LARC/Meintel, A. J. 49-Engr, NEC
Kelley, R. LARC/Woolley, C. T.
Birk, J.

NAGW 206 **University of Rhode Island** **4332**
The Archaean environment: Stable isotope studies on Archaean stromatolites
Period *Obligations*
06/01/81-05/31/83 FY82: TOTAL: \$42,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Abell, P. I. HQ-EB/Devincenzi, D. L. 32-Geological Sci

NSG 1495 **University of Rhode Island** **4333**
Use of numerical continental shelf circulation and pollutant transport models for analysis of remotely sensed data
Period *Obligations*
02/01/78-07/31/81 FY82: TOTAL: \$119,585
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spaulding, M. L. LARC/Campbell, J. W. 33-Oceanography

NSG 7414 **University of Rhode Island** **4334**
Paleoflow processes and formation of Martian channels
Period *Obligations*
10/01/77-09/30/82 FY82: TOTAL: \$90,520
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Boothroyd, J. C. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Holt, H. E.

SOUTH CAROLINA

NAG 5-218 **Citadel Military College of S C** **4335**
Abundances of the elements in sharp-lined normal late B-type stars
Period *Obligations*
03/01/82-08/31/83 FY82: \$6,800 TOTAL: \$6,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adelman, S. J. GSFC/Boggess, A. 11-Astronomy

NSG 5420 **Citadel Military College of S C** **4336**
Observations of spectrum variability of hot peculiar A stars
Period *Obligations*
11/01/79-06/30/81 FY82: \$40 TOTAL: \$10,630
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adelman, S. J. GSFC/Boggess, A. 11-Astronomy
Shore, S. N.

NAG 1-81 **Clemson University - Clemson** **4337**
Integrated controls concepts
Period *Obligations*
10/01/80-04/15/82 FY82: TOTAL: \$39,660
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fennell, R. E. LARC/Lallman, F. J. 21-Mathematics
LARC/Murphy, P. C.

NAG 3-116 **Clemson University - Clemson** **4338**
Research and development of an artificial finger joint grommet using ion thruster technology
Period *Obligations*
10/01/80-06/01/82 FY82: TOTAL: \$51,811
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vanrecum, A. F. LERC/Kerslake, W. R. 56-Medical Sciences

NAG 5-232 **Clemson University - Clemson** **4339**
Critical review of remote methods for the precision measurement of rainfall parameters
Period *Obligations*
06/01/82-11/30/82 FY82: \$17,030 TOTAL: \$17,030
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ulbrich, C. W. GSFC/Thiele, O. W. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
SOUTH DAKOTA (Continued)**

NSG 5396 **South Dakota State University** **4354**
Advanced microwave soil moisture studies

<i>Period</i>	<i>Obligations</i>	
07/01/79-05/31/83	FY82: \$50,121	TOTAL: \$216,517
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Harlan, J. C.	GSFC/Schmugge, T. J.	39-Env Sci, NEC
Myers, V. I.	GSFC/O'Neill, P.	

NAG 1-32 **University of Tennessee - Knoxville** **4361**
A tensor-product finite element algorithm for Navier-Stokes solutions at large Reynolds number

<i>Period</i>	<i>Obligations</i>	
02/01/80-06/30/81	FY82:	TOTAL: \$23,180
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baker, A. J.	LARC/Smith, R. E.	21-Mathematics
	LARC/Shoosmith, J. N.	

TENNESSEE

NAG 8-10 **Fisk University** **4355**
The influence of defects and impurities on the electrical and optical properties of pyroelectric crystals

<i>Period</i>	<i>Obligations</i>	
05/01/81-11/16/82	FY82:	TOTAL: \$53,114
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Springer, J. M.	MSFC/Kroes, R. L.	13-Physics
	MSFC/Kent, M. I.	

NAG 2-71 **University of Tennessee - Knoxville** **4362**
Three-dimensional boundary layer flow over transonic slotted wind tunnel wall with mass transfer

<i>Period</i>	<i>Obligations</i>	
12/01/80-10/31/82	FY82:	TOTAL: \$48,144
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, J. M.	ARC/Steinle, F. W., Jr.	41-Aero Engr

NSG 8060 **Fisk University** **4356**
Optical characterization of zero-gravity grown crystals

<i>Period</i>	<i>Obligations</i>	
04/17/78-05/16/83	FY82: \$39,000	TOTAL: \$257,261
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silberman, E.	MSFC/Kroes, R. L.	13-Physics
Morgan, S. H.	MSFC/Kent, M. I.	
Springer, J.		

NAG 2-193 **University of Tennessee - Knoxville** **4363**
Study of flow field on transonic adaptive wind tunnel wall with controlled segmented compartments

<i>Period</i>	<i>Obligations</i>	
10/01/82-09/30/83	FY82: \$65,000	TOTAL: \$65,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, J. M.	ARC/Schairer, E. T.	41-Aero Engr
Collins, F. G.		

NAS 5-23801 **Meharry Medical College** **4357**
Investigation of medical information management system application in a complex health care facility

<i>Period</i>	<i>Obligations</i>	
12/07/76-02/05/83	FY82:	TOTAL: \$165,564
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Braun, G.	GSFC/Alterescu, S.	56-Medical Sciences

NAG 3-18 **University of Tennessee - Knoxville** **4364**
A coordinate mapping procedure for the computation of variable duct acoustics

<i>Period</i>	<i>Obligations</i>	
01/01/80-01/16/83	FY82: \$31,628	TOTAL: \$81,930
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
White, J. W.	LERC/Baumelster, K. J.	41-Aero Engr
	LERC/Rice, E. J.	

NAS13-171 **Middle Tennessee State University** **4358**
Develop and conduct remote sensing short courses and seminars

<i>Period</i>	<i>Obligations</i>	
03/12/81-03/11/84	FY82:	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fullerton, R. O.	NSTL/Conner, P. K.	32-Geological Sci

NAG 3-83 **University of Tennessee - Knoxville** **4365**
Time dependent local heat transfer coefficient variations during the ice accretion process on aircraft surfaces

<i>Period</i>	<i>Obligations</i>	
07/14/80-07/13/83	FY82:	TOTAL: \$68,972
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Keshock, E. G.	LERC/Shaw, R. J.	41-Aero Engr

NAG 3-125 **Tennessee State University** **4359**
Investigation of relationships among machinability, wear and cavitation erosion of materials

<i>Period</i>	<i>Obligations</i>	
11/03/80-11/01/82	FY82: \$40,314	TOTAL: \$80,446
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chaudhuri, D. K.	LERC/Young, S. G.	47-Materials Engr

NAG 3-86 **University of Tennessee - Knoxville** **4366**
Aerodynamically forced vibration of radial flow components

<i>Period</i>	<i>Obligations</i>	
07/14/80-09/30/82	FY82:	TOTAL: \$70,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Caruthers, J. E.	LERC/Rostafinski, W.	41-Aero Engr
Kurosaka, M.		

NGT 43-014-750 **Tennessee State University** **4360**
Training of undergraduate students in sciences and engineering

<i>Period</i>	<i>Obligations</i>	
06/01/75-05/31/83	FY82: \$14,000	TOTAL: \$100,750
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Malkani, M. J.	HQ-LC/Pohly, J. G.	49-Engr, NEC

NAG 3-90 **University of Tennessee - Knoxville** **4367**
Scaling analysis of the ice accretion process for the purpose of establishing scaling criteria for experimental testing

<i>Period</i>	<i>Obligations</i>	
08/04/80-01/02/82	FY82:	TOTAL: \$40,235
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Keshock, E. G.	LERC/Shaw, R. J.	41-Aero Engr
Missimer, J. R.		

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

NAG 3-233 University of Tennessee - Knoxville 4368
Experimental investigation of secondary flows in a S-shaped circular duct

<i>Period</i>	<i>Obligations</i>	
12/15/81-12/14/82	FY82: \$49,968	TOTAL: \$49,968
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wu, J. M.	LERC/Hingst, W. R.	41-Aero Engr
Vakili, A.		

NAS 8-33386 University of Tennessee - Knoxville 4375
Theoretical analysis of baroclinic flows

<i>Period</i>	<i>Obligations</i>	
08/13/79-03/30/83	FY82: \$49,977	TOTAL: \$148,029
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Antar, B. N.	MSFC/Fowles, W. W.	31-Atmos Sci
	MSFC/Smith, G. T.	

NAG 3-239 University of Tennessee - Knoxville 4369
An experimental investigation of thermoacoustic convection heat transfer phenomenon in zero-gravity environment

<i>Period</i>	<i>Obligations</i>	
12/10/81-12/09/82	FY82: \$23,878	TOTAL: \$23,878
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parang, M.	LERC/Chai, A. T.	19-Phys Sci, NEC

NAS 8-34268 University of Tennessee - Knoxville 4376
Study of convection in a solidifying binary mixture at reduced gravity

<i>Period</i>	<i>Obligations</i>	
01/20/81-05/19/83	FY82: \$27,000	TOTAL: \$47,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Antar, B. N.	MSFC/Schafer, C. F.	31-Atmos Sci

NAGW 125 University of Tennessee - Knoxville 4370
Spectroscopy of methane for the atmospheres of the outer planets

<i>Period</i>	<i>Obligations</i>	
03/01/81-09/30/83	FY82: \$43,000	TOTAL: \$83,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fox, K.	HQ-EL/Britton, H. C.	11-Astronomy
	HQ-EL/Brunk, W. E.	

NAS 8-34320 University of Tennessee - Knoxville 4377
Hydrogen LSC waves for laser powered propulsion

<i>Period</i>	<i>Obligations</i>	
07/08/81-03/15/83	FY82: \$49,839	TOTAL: \$109,820
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Keefer, D. R.	MSFC/Jones, L. W.	13-Physics
	MSFC/Richmond, B. J.	

NAS 3-23278 University of Tennessee - Knoxville 4371
Gas flow environment and heat transfer nonrotating 30 program

<i>Period</i>	<i>Obligations</i>	
04/14/82-12/01/84	FY82: \$315,389	TOTAL: \$315,389
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schulz, R.	LERC/Gladden, H. J.	41-Aero Engr
Harwell, K. E.		
Wu, J. M.		

NAS 8-34426 University of Tennessee - Knoxville 4378
Gravity Probe-B error modeling and analysis

<i>Period</i>	<i>Obligations</i>	
06/24/81-08/31/83	FY82: \$30,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hung, J. C.	MSFC/McMillion, J. M.	42-Astro Engr
	MSFC/Hypes, M. C.	

NAS 5-26896 University of Tennessee - Knoxville 4372
Fabrication of cooled sample chambers and high resolution infrared spectrum of propane gas

<i>Period</i>	<i>Obligations</i>	
02/23/82-08/01/83	FY82: \$13,500	TOTAL: \$13,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Daunt, S. J.	GSFC/Maguire, V. C.	13-Physics
Blass, W. E.	GSFC/Kunde, V. G.	

NAS 8-34627 University of Tennessee - Knoxville 4379
Research study: Low level gusts gradient program and aviation workshop effort

<i>Period</i>	<i>Obligations</i>	
11/20/81-05/24/83	FY82: \$155,831	TOTAL: \$155,831
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frost, W.	MSFC/Turner, R. E.	31-Atmos Sci
	MSFC/Sloan, J. C.	

NAS 8-32031 University of Tennessee - Knoxville 4373
Field study of advection fog

<i>Period</i>	<i>Obligations</i>	
09/01/76-01/18/81	FY82:	TOTAL: \$97,781
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Connett, J. R.	MSFC/Vaughan, O. H.	31-Atmos Sci
	MSFC/Anderson, B. J.	

NAS10-9834 University of Tennessee - Knoxville 4380
Develop the mechanical component of a high precision strain gage accelerometer

<i>Period</i>	<i>Obligations</i>	
04/28/80-04/28/81	FY82:	TOTAL: \$17,970
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Speckhart, F. H.	KSC/Reynolds, E. A.	49-Engr, NEC

NAS 8-32692 University of Tennessee - Knoxville 4374
Gust gradient analysis

<i>Period</i>	<i>Obligations</i>	
07/07/78-02/02/82	FY82: \$52,260	TOTAL: \$346,458
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frost, W.	MSFC/Camp, D. W.	31-Atmos Sci

NCA 2-772901 University of Tennessee - Knoxville 4381
Theoretical analysis on the boundary layer development over a slotted wind tunnel wall

<i>Period</i>	<i>Obligations</i>	
05/01/79-12/31/81	FY82:	TOTAL: \$39,956
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tirres, C.	ARC/Steinle, F. W., Jr.	41-Aero Engr
Wu, J. M.		

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

NGL 43-001-140 University of Tennessee - Knoxville 4382
Experimental investigations of opaque minerals and cooling history of lunar rocks

Period	Obligations	
09/01/73-01/31/83	FY82: \$55,000	TOTAL: \$567,357
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hunter, R. H.	JSC/Dietrich, J. W.	11-Astronomy

NSG 3287 University of Tennessee - Knoxville 4390
Internal computational fluid mechanics program for turbomachinery

Period	Obligations	
07/01/79-08/31/81	FY82:	TOTAL: \$148,440
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kurosaka, M.	LARC/Siegel, R.	41-Aero Engr
Wu, J. M.		
Caruthers, J. E.		

NGT 43-001-800 University of Tennessee - Knoxville 4383
Graduate student researchers program

Period	Obligations	
06/01/80-05/31/81	FY82:	TOTAL: \$11,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Taylor, L. A.	JSC/Williams, R.	32-Geological Sci

NSG 7413 University of Tennessee - Knoxville 4391
Petrologic studies of meteorite groups

Period	Obligations	
02/01/78-03/31/83	FY82: \$24,026	TOTAL: \$117,309
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McSween, H. Y.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Boyce, J. M.	

NGT 43-001-801 University of Tennessee - Knoxville 4384
Graduate student researchers program

Period	Obligations	
04/01/81-03/31/83	FY82: \$11,150	TOTAL: \$22,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Keefer, D.	HQ-LB/Carter, C. H.	46-Mech Engr

NAS 9-15670 University of Tennessee - Memphis 4392
Relative toxicity testing of spacecraft materials

Period	Obligations	
11/10/78-08/08/83	FY82: \$35,000	TOTAL: \$148,623
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Autian, J.	JSC/Coleman, M. E.	56-Medical Sciences

NGT 43-001-802 University of Tennessee - Knoxville 4385
Graduate student researchers program

Period	Obligations	
10/01/81-09/30/83	FY82: \$12,950	TOTAL: \$24,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Antar, B. N.	HQ-LB/Carter, C. H.	49-Engr, NEC

NAG 5-176 Vanderbilt University 4393
Chromospheric emission of selected stars: Ionization structure of expanding atmospheres

Period	Obligations	
05/01/81-06/30/83	FY82: \$7,938	TOTAL: \$13,574
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eaton, J. A.	GSFC/Kondo, Y.	11-Astronomy

NGT 43-001-803 University of Tennessee - Knoxville 4386
Graduate student researchers program

Period	Obligations	
07/01/81-06/30/82	FY82:	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Taylor, L. A.	HQ-LB/Carter, C. H.	32-Geological Sci
Hunter, R. H.		

NAS 8-32695 Vanderbilt University 4394
Solar radiation on glasses

Period	Obligations	
06/27/78-08/31/82	FY82:	TOTAL: \$53,799
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kinser, D. L.	MSFC/Nichols, R. L.	47-Materials Engr
	MSFC/King, H. M.	

NGT 43-001-804 University of Tennessee - Knoxville 4387
Graduate student researchers program

Period	Obligations	
04/01/82-03/31/83	FY82: \$12,950	TOTAL: \$12,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Antar, B.	HQ-LB/Carter, C. H.	31-Atmos Sci

NAS 8-34428 Vanderbilt University 4395
Directional solidification of liquid miscibility gap systems

Period	Obligations	
07/02/81-12/31/82	FY82: \$8,000	TOTAL: \$38,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lichter, B. D.	MSFC/Johnson, M. H.	12-Chemistry
	MSFC/Strong, J. S.	

NGT 43-001-805 University of Tennessee - Knoxville 4388
Graduate student researchers program

Period	Obligations	
06/01/82-05/31/83	FY82: \$13,000	TOTAL: \$13,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hunter, R. H.	HQ-LB/Carter, C. H.	19-Phys Sci, NEC

NAS 8-34676 Vanderbilt University 4396
The microstructural analysis of Nb and Nb-Ge drop tube specimens

Period	Obligations	
10/15/81-10/14/82	FY82: \$11,388	TOTAL: \$11,388
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bayuzick, R. J.	MSFC/Schaefer, D. A.	47-Materials Engr
	MSFC/Williams, J. R.	

NSG 1224 University of Tennessee - Knoxville 4389
A study of unsteady transonic flow analysis

Period	Obligations	
08/07/75-03/31/82	FY82:	TOTAL: \$136,973
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kimble, K. R.	LARC/Bland, S. R.	41-Aero Engr
	LARC/Yates, E. C., Jr.	

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

NAS 8-34963 **Vanderbilt University** **4397**
Homogeneous glass crystallization analysis
Period *Obligations*
10/01/82-09/30/83 FY82: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kinser, D. L. MSFC/Ethridge, E. C. 47-Materials Engr
MSFC/Curren, P. A.

NAS 2-10801 **Baylor College of Medicine** **4404**
Regulation of erythropoiesis in mice during spaceflight
Period *Obligations*
09/05/80-09/30/81 FY82: \$38,319 TOTAL: \$46,152
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dunn, C. D. ARC/Ferandin, J. 51-Biological Sci

NCC 1-8 **Vanderbilt University** **4398**
Advanced solar energy conversion
Period *Obligations*
05/01/79-08/31/83 FY82: \$43,745 TOTAL: \$262,944
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, J. H. LARC/Jalufka, N. W. 13-Physics
LARC/Conway, E. J.

NAS 9-13737 **Baylor College of Medicine** **4405**
Analysis of body calcium
Period *Obligations*
02/01/74-07/01/81 FY82: \$3,594 TOTAL: \$319,898
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suki, W. JSC/Altchucer, S. I. 56-Medical Sciences

NSG 7463 **Vanderbilt University** **4399**
Ground-based photometry of HR 1099 coordinated with the
October 1977 Copernicus campaign
Period *Obligations*
05/01/78-05/31/84 FY82: TOTAL: \$4,193
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hall, D. HQ-EZ/Roman, N. G. 11-Astronomy
HQ-EZ/Rosendhal, J. D.

NAS 9-14407 **Baylor College of Medicine** **4406**
Evaluate primary irritancy and allergenicity of materials proposed
for crew apparel
Period *Obligations*
09/19/74-12/31/80 FY82: TOTAL: \$11,659
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Duncan, W. C. JSC/Rippstein, W. J. 56-Medical Sciences

NSG 7543 **Vanderbilt University** **4400**
Ground-based UVB photometry of RS Canis Venticorum binar-
ies
Period *Obligations*
08/15/79-07/31/83 FY82: TOTAL: \$92,003
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hall, D. HQ-EZ/Weiler, E. J. 11-Astronomy
HQ-EZ/Bogges, N. W.

NAS 9-14546 **Baylor College of Medicine** **4407**
Etiological study of motion sickness by using subhuman pri-
mates
Period *Obligations*
05/01/75-08/31/83 FY82: \$65,217 TOTAL: \$332,397
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Igaraski, M. JSC/Homick, J. L. 56-Medical Sciences

NAS 9-14662 **Baylor College of Medicine** **4408**
Influence of the external parameters of space flight on the
regulation of blood volume
Period *Obligations*
06/01/75-11/30/83 FY82: \$41,900 TOTAL: \$377,943
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alfrey, C. JSC/Leach, C. S. 56-Medical Sciences

TEXAS

NASW 3577 **Baylor University** **4401**
Development of a dust impact detector system
Period *Obligations*
06/01/82-09/30/86 FY82: \$28,333 TOTAL: \$28,333
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alexander, W. M. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Brinton, H. C.

NAS 9-15457 **Baylor College of Medicine** **4409**
Early detection of disease by evaluation of the cellular immune
response
Period *Obligations*
11/01/77-01/31/81 FY82: TOTAL: \$289,237
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Criswell, B. S. JSC/Leach, C. S. 56-Medical Sciences

NAGW 308 **Baylor College of Medicine** **4402**
Regulation of hematopoiesis in the suspended rat as a model
for spaceflight
Period *Obligations*
03/15/82-03/14/83 FY82: \$47,100 TOTAL: \$47,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dunn, C. D. HQ-EB/Halstead, T. W. 51-Biological Sci

NAS 9-15891 **Baylor College of Medicine** **4410**
Renal responses to water immersion
Period *Obligations*
06/01/79-12/31/82 FY82: \$15,000 TOTAL: \$60,982
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suki, W. N. JSC/Leach, C. S. 59-Life Sci, NEC

NAS 2-10354 **Baylor College of Medicine** **4403**
Cosmos 1979 experiment: Trabeculae and mineralization in the
long bones
Period *Obligations*
09/01/79-12/31/80 FY82: TOTAL: \$18,922
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Matthews, J. L. ARC/Souza, K. A. 56-Medical Sciences
Judy, M. ARC/Heinrich, M.

NAS 9-16029 **Baylor College of Medicine** **4411**
Life science flight experiment
Period *Obligations*
01/17/80-01/31/82 FY82: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chriswell, B. S. JSC/Thirolf, R. G. 59-Life Sci, NEC

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 9-16040 **Baylor College of Medicine** **4412**
Life science flight experiment
Period *Obligations*
01/17/80-01/31/82 FY82: TOTAL: \$19,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martin, R. R. JSC/Thirolf, R. G. 59-Life Sci, NEC

NAG 9-13 **Houston Baptist University** **4420**
Measurement of trace levels of chlorine in the stratosphere
Period *Obligations*
12/22/80-09/22/82 FY82: TOTAL: \$4,578
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warren, D. C. JSC/Robbins, D. E. 31-Atmos Sci

NAS 9-16180 **Baylor College of Medicine** **4413**
Influence of space flight on erythropoietin activity and inhibition
Period *Obligations*
08/01/80-02/28/83 FY82: \$40,000 TOTAL: \$104,298
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dunn, C. D. JSC/Leach, C. S. 56-Medical Sciences

NAG 9-16 **Houston Baptist University** **4421**
Spectroscopic investigation of the species emitting diffuse light
in JSC solar panel plasma effects simulation
Period *Obligations*
02/01/81-12/31/82 FY82: TOTAL: \$9,041
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warren, D. C. JSC/McCoy, J. E. 13-Physics

NAS 9-16280 **Baylor College of Medicine** **4414**
Operational virology support for microbiology lab
Period *Obligations*
12/01/80-11/30/82 FY82: \$26,901 TOTAL: \$53,802
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knight, V. JSC/Pierson, D. L. 56-Medical Sciences

NSG 9038 **Houston Baptist University** **4422**
Obtaining high spatial resolution planetary imagery with potential
shuttle era instrumentation
Period *Obligations*
01/01/76-04/30/82 FY82: TOTAL: \$56,723
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morgan, T. H. JSC/Potter, A. E. 11-Astronomy

NAS 9-16358 **Baylor College of Medicine** **4415**
Evaluation of textiles proposed for spacecraft and aircraft crew
apparel
Period *Obligations*
04/02/81-07/31/81 FY82: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Duncan, W. C. JSC/Coleman, W. 12-Chemistry

NSG 9076 **Houston Baptist University** **4423**
Spectroscopic investigation of the species emitting diffuse light
in Johnson Space Center solar panel plasma effects simulation
Period *Obligations*
04/01/79-02/15/81 FY82: TOTAL: \$14,216
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warren, D. G. JSC/McCoy, J. 19-Phys Sci, NEC

NAS 9-16387 **Baylor College of Medicine** **4416**
Quantitation of urinary hydroxylsine metabolites
Period *Obligations*
05/22/81-01/31/82 FY82: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Diferrante, N. JSC/Cintron, N. M. 56-Medical Sciences

NSG 9033 **Pan American University** **4424**
Experimental tests and model calculations on wheat varieties
grown in India/Bakistan and in Texas
Period *Obligations*
08/28/75-12/31/82 FY82: \$8,000 TOTAL: \$254,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lemaster, E. W. JSC/Pitts, D. E. 39-Env Sci, NEC
Chance, J. E.

NAS 9-16442 **Baylor College of Medicine** **4417**
Bone metabolism study using free bone pedicle grafts
Period *Obligations*
01/08/82-09/30/83 FY82: \$87,552 TOTAL: \$87,552
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leblanc, A. JSC/Smith, M. 56-Medical Sciences
Spira, M.

NSG 9070 **Pan American University** **4425**
Laboratory studies of the diffuse reflectance spectra of frosts
and minerals occurring on astronomical objects
Period *Obligations*
06/01/78-07/31/81 FY82: TOTAL: \$112,025
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glaser, F. M. JSC/Mendell, W. 11-Astronomy

NAS 9-16754 **Baylor College of Medicine** **4418**
Flow cytometric analysis of peripheral blood lymphocytes
Period *Obligations*
09/22/82-12/22/82 FY82: \$8,625 TOTAL: \$8,625
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rich, R. R. JSC/Taylor, G. R. 56-Medical Sciences

NCA 2-598001 **Prairie View A&M University** **4426**
Joint development of recruiting techniques for minority employ-
ment
Period *Obligations*
09/01/80-08/31/81 FY82: TOTAL: \$2,831
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jackson, B. N. ARC/White, W. L. 19-Phys Sci, NEC

NGR 44-095-001 **Hardin - Simmons University** **4419**
Study of psychophilic organisms isolated from manufacture and
assembly areas of spacecraft to be used in the Viking missions
Period *Obligations*
08/21/72-12/31/81 FY82: TOTAL: \$506,891
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Foster, T. L. HQ-EB/Devincenzi, D. L. 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NCA 2-598101 **Prairie View A&M University** **4427**
Resistance-capacitance active filter design
Period *Obligations*
09/01/81-08/31/82 **FY82:** **TOTAL: \$15,254**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fuller, J. H. ARC/Deboo, G. J.
29-Math/Cmputer,NEC

NCA 2-598102 **Prairie View A&M University** **4428**
Design of fatigue tester for wind tunnel compressor blade
Period *Obligations*
09/01/81-12/31/82 **FY82:** **TOTAL: \$24,786**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yeh, H. Y. ARC/Matshiro, D. S.
29-Math/Cmputer,NEC

NCA 2-598103 **Prairie View A&M University** **4429**
Long term recording wattmeter
Period *Obligations*
09/01/81-08/31/82 **FY82:** **TOTAL: \$27,083**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emanuel, E. ARC/Brown, R. C., Jr.
29-Math/Cmputer,NEC

NCA 2-598104 **Prairie View A&M University** **4430**
Microprocessor instrumentation system
Period *Obligations*
09/01/81-12/31/82 **FY82:** **TOTAL: \$21,384**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knighton, T. G. ARC/Camisa, J. T.
29-Math/Cmputer,NEC

NCA 2-598202 **Prairie View A&M University** **4431**
Design of a unibus code conversion device
Period *Obligations*
01/01/82-12/31/82 **FY82: \$26,656** **TOTAL: \$26,656**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knighton, T. G. ARC/Lakowske, S. D. 45-Elec Engr

NCA 2-598203 **Prairie View A&M University** **4432**
Market survey of voice data entry systems
Period *Obligations*
01/01/82-12/31/82 **FY82: \$15,916** **TOTAL: \$15,916**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knighton, T. G. ARC/Lakowske, S. D. 45-Elec Engr

NSG 9006 **Prairie View A&M University** **4433**
Measurement of growth morphological and bi-directional scattering parameters of wheat
Period *Obligations*
06/01/74-11/30/81 **FY82:** **TOTAL: \$232,019**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brams, E. A. JSC/Browne, I. D. 39-Env Sci, NEC

NAG 3-29 **Rice University** **4434**
A study of solar energy radio frequency generation devices
Period *Obligations*
03/01/80-06/30/81 **FY82:** **TOTAL: \$65,175**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Freeman, J. W. LERC/Kosmahli, H. G. 19-Phys Sci, NEC
Broetzen, F. R.

NAG 5-262 **Rice University** **4435**
High dispersion ultraviolet spectra abundances of carbon, silicon and magnesium in selected galactic regions
Period *Obligations*
08/01/82-01/31/83 **FY82: \$8,000** **TOTAL: \$8,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dufour, R. J. GSFC/Kondo, Y. 11-Astronomy
Shields, G. A.
Harvel, C. A.

NAG 6-5 **Rice University** **4436**
Study plasma interactions in the auroral ionosphere
Period *Obligations*
07/01/80-12/31/82 **FY82:** **TOTAL: \$248,154**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, H. R. GSFC/Early, L. J. 19-Phys Sci, NEC
Wolf, R. A. WFC/Pless, R. H.

NAGW 69 **Rice University** **4437**
Electron beam-plasma interactions in the laboratory and in the ionosphere
Period *Obligations*
06/01/80-05/31/83 **FY82: \$60,000** **TOTAL: \$177,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bernstein, W. HQ-EE/Benson, R. F. 19-Phys Sci, NEC
HQ-EZ/Schmerling, E. R.

NAGW 166 **Rice University** **4438**
Jupiter data analysis: A search for magnetic anomaly effects
Period *Obligations*
03/01/81-02/28/83 **FY82: \$52,460** **TOTAL: \$92,460**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dessler, A. J. HQ-EE/Lynch, J. T. 13-Physics
HQ-EL/Evans, N.

NAGW 168 **Rice University** **4439**
Rotational and convective plasma flow in the Jovian magnetosphere
Period *Obligations*
03/01/81-02/28/83 **FY82: \$30,000** **TOTAL: \$60,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hill, T. W. HQ-EE/Lynch, J. T. 13-Physics
HQ-EE/Evans, N.

NAS 2-10519 **Rice University** **4440**
Life science experiment, ARC 781-288, adaptive characteristics of enzymes of nitrogen metabolism in mammals during space-flight
Period *Obligations*
01/17/80-07/21/82 **FY82:** **TOTAL: \$11,358**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Campbell, J. ARC/Fernandin, J. A. 51-Biological Sci
Johnson, J. E. ARC/Sebesta, P. D.

NAS 5-23338 **Rice University** **4441**
Theoretical predictions and data analysis
Period *Obligations*
02/04/74-12/31/82 **FY82: \$34,855** **TOTAL: \$106,865**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cloutier, P. A. GSFC/Taylor, H. A., Jr. 13-Physics
GSFC/Gagnon, G.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 8-33199 **Rice University** **4442**
Measurement of high temperature properties of liquid and solid tungsten

<i>Period</i>	<i>Obligations</i>	
11/27/78-04/01/83	FY82: \$64,000	TOTAL: \$113,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Margrave, J. L.	MSFC/Fallon, R. A.	47-Materials Engr
	MSFC/Ethridge, E. C.	

NAS 9-16732 **Rice University** **4449**
Ionospheric research radar operation and data reduction support

<i>Period</i>	<i>Obligations</i>	
09/01/82-09/30/83	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gordon, W. E.	JSC/Jost, J.	22-Computer Science

NAS 8-33361 **Rice University** **4443**
Correlative studies of cosmic gamma ray sources under the HEAO-A guest investigator program

<i>Period</i>	<i>Obligations</i>	
07/16/79-07/15/81	FY82:	TOTAL: \$13,648
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haymes, R. C.	MSFC/Jones, J. B.	11-Astronomy
Meegan, C. A.		

NGL 44-006-012 **Rice University** **4450**
Laboratory development of solar wind heavy-ion mass spectrometer

<i>Period</i>	<i>Obligations</i>	
06/27/64-06/30/83	FY82: \$70,000	TOTAL: \$1,653,736
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wolf, R. A.	HQ-EE/Lynch, J. T.	13-Physics
	HQ-EE/Schmerling, E. R.	

NAS 8-33771 **Rice University** **4444**
Theoretical and experimental study of beam plasma physics

<i>Period</i>	<i>Obligations</i>	
07/25/80-10/31/81	FY82:	TOTAL: \$223,016
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Anderson, H. R.	MSFC/Talley, D. H.	13-Physics

NGL 44-006-127 **Rice University** **4451**
Lunar fines, their origin, evolution, and interaction with solar wind and cosmic rays

<i>Period</i>	<i>Obligations</i>	
02/16/71-12/31/82	FY82: \$10,000	TOTAL: \$602,693
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heymann, D.	JSC/Dietrich, J. W.	32-Geological Sci

NAS 9-15630 **Rice University** **4445**
Trace contaminant coadsorption by charcoal

<i>Period</i>	<i>Obligations</i>	
07/01/78-01/01/83	FY82: \$10,000	TOTAL: \$47,988
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Doviak, R. J.	JSC/Lin, C. H.	43-Chem Engr
Bluestins, H. B.		

NGR 44-006-137 **Rice University** **4452**
Analysis of data on the magnetotail and solar wind

<i>Period</i>	<i>Obligations</i>	
12/29/70-02/28/83	FY82: \$85,000	TOTAL: \$567,027
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reiff, P. H.	HQ-EE/Lynch, J. T.	13-Physics
	HQ-EE/Schmerling, E. R.	

NAS 9-16428 **Rice University** **4446**
Phase perturbation measurements through a heated ionosphere

<i>Period</i>	<i>Obligations</i>	
08/03/81-12/15/81	FY82:	TOTAL: \$15,056
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Gordon, W. E.	JSC/Arndt, G. D.	31-Atmos Sci

NGT 44-006-800 **Rice University** **4453**
Zonal wind dynamics in the atmospheres of Jupiter and Saturn from Voyager IRIS measurements graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/81	FY82:	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chamberlain, J. W.	GSFC/Mumma, M. J.	13-Physics

NAS 9-16596 **Rice University** **4447**
Imagery and spectroscopy of supernova remnants and HII regions

<i>Period</i>	<i>Obligations</i>	
05/01/82-06/01/83	FY82: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dufour, R. J.	JSC/Parker, R. A.	11-Astronomy

NGT 44-006-801 **Rice University** **4454**
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
08/01/82-07/31/83	FY82: \$10,880	TOTAL: \$10,880
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bernstein, W.	HQ-LB/Carter, C. H.	13-Physics

NAS 9-16672 **Rice University** **4448**
Design and build an electron gun port to be compatible with an 8' conflat flange on the space plasma lab vacuum chamber

<i>Period</i>	<i>Obligations</i>	
06/30/82-08/01/82	FY82: \$5,000	TOTAL: \$5,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bernstein, W.	JSC/Konradi, A.	13-Physics

NGT 44-006-802 **Rice University** **4455**
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$8,100	TOTAL: \$8,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leeman, W. R.	HQ-LB/Carter, C. H.	12-Chemistry

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NSG 5286	Rice University	4456	NAS 9-16140	Southern Methodist University	4463
Investigation of low altitude plasma phenomena			Proposed work on the Osta, Rio Grande rift project		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/01/78-03/31/82	FY82:	TOTAL: \$66,000	06/24/80-04/30/82	FY82:	TOTAL: \$9,994
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reiff, P. H.	GSFC/Spencer, N. W.	31-Atmos Sci	Dungan, M. A.	JSC/Blanchard, D. P.	32-Geological Sci
NSG 5364	Rice University	4457	NAS 9-16438	Southern Methodist University	4464
Observations of the ultraviolet spectra of Magellanic clouds			Study establishment of a center of excellence for applied mathematical and statistical research		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
06/01/79-05/31/81	FY82:	TOTAL: \$24,874	08/01/81-10/31/83	FY82: \$85,765	TOTAL: \$151,765
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dufour, R. J.	GSFC/Bogges, A.	11-Astronomy	Gray, H. L.	JSC/Houston, G.	21-Mathematics
Talbot, R. J.					
Shields, G. A.					
NSG 7032	Rice University	4458	NGT 44-007-800	Southern Methodist University	4465
Apollo data synthesis: Lunar atmosphere and ionosphere			Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
04/01/74-03/01/83	FY82:	TOTAL: \$90,307	06/01/80-08/31/83	FY82: \$10,995	TOTAL: \$30,315
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Michel, F. C.	HQ-EL/Quaide, W. L.	31-Atmos Sci	Dungan, M. A.	HQ-LB/Carter, C. H.	32-Geological Sci
NSG 7043	Rice University	4459	NSG 2354	Southern Methodist University	4466
Research on planetary atmospheres			Experimental measurements of unsteady turbulent boundary layers near separation		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
03/01/74-12/31/82	FY82:	TOTAL: \$377,625	12/01/78-08/31/82	FY82:	TOTAL: \$150,892
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chamberlain, J. W.	HQ-EL/Brinton, H. C.	31-Atmos Sci	Simpson, R. L.	ARC/Marvin, J. G.	42-Astro Engr
NSG 7361	Rice University	4460	NAS 9-16670	Southwestern University	4467
Origin of the solar system: The relationship of isotopic and chemical anomalies in meteorites Earth, Moon and planets to astrophysical models of their origin			Preliminary design of an earth-based debris detection system		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
08/01/77-04/30/83	FY82: \$29,996	TOTAL: \$118,781	06/01/82-05/31/83	FY82: \$8,262	TOTAL: \$8,262
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clayton, D. D.	HQ-EL/Quaide, W. L.	32-Geological Sci	Morgan, T. H.	JSC/Robbins, D. E.	39-Env Sci, NEC
	HQ-EL/Taylor, L. A.				
NSG 7386	Rice University	4461	NAS 9-16718	Texas A&M University	4468
Study of ion-molecule reactions of importance in planetary atmosphere			Climate-vegetation. Gradient modeling based on NOAA/AVHRR imagery		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
09/01/77-02/28/82	FY82: \$44,498	TOTAL: \$189,629	09/01/82-08/31/83	FY82: \$3,250	TOTAL: \$3,250
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stebbins, R. F.	HQ-EL/Murphy, R. E.	31-Atmos Sci	Greegor, D.	JSC/Demel, K. J.	32-Geological Sci
DEN 8-22	Southern Methodist University	4462	NAG 1-11	Texas A&M University	4469
To establish an operating solar house to be used as a demonstration retro-fit			Analytical study of jet shielding		
<i>Period</i>	<i>Obligations</i>		<i>Period</i>	<i>Obligations</i>	
07/29/81-09/15/81	FY82:	TOTAL: \$25,000	01/01/80-05/31/83	FY82: \$42,376	TOTAL: \$109,980
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Crawford, G. W.	MSFC/Moore, W. L.	49-Engr, NEC	Gerhold, C. H.	LARC/Yu, J. C.	41-Aero Engr
Howard, L. L.	MSFC/Murphy, R. N.				
NAG 1-112	Texas A&M University	4470			
The role of coherent structures in the generation of noise for subsonic jets					
<i>Period</i>	<i>Obligations</i>				
11/01/80-10/31/82	FY82:	TOTAL: \$79,986			
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>			
Morrison, G. L.	LARC/Yu, J. C.	13-Physics			

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 1-184 Texas A&M University 4471
Research on composite wing extensions for general aviation aircraft
Period *Obligations*
05/01/81-01/01/83 FY82: TOTAL: \$59,089
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horn, W. J. LARC/Dow, M. B. 41-Aero Engr
Nicks, O. W. LARC/Dexter, H. B.

NAG 1-214 Texas A&M University 4472
Airframe/propeller propulsion integration state-of-technology survey
Period *Obligations*
09/01/81-12/31/82 FY82: TOTAL: \$39,731
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miley, S. J. LARC/Jernell, L. S. 41-Aero Engr

NAG 2-25 Texas A&M University 4473
Airframe/propeller propulsion integration analyses
Period *Obligations*
05/01/80-05/31/82 FY82: TOTAL: \$59,363
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miley, S. J. ARC/Enomoto, F. Y. 41-Aero Engr

NAG 3-31 Texas A&M University 4474
Constitutive models for cyclic plasticity and creep behavior of super alloys at high temperature
Period *Obligations*
04/01/80-06/28/83 FY82: \$57,000 TOTAL: \$152,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haisler, W. E. LERC/Thompson, R. L. 47-Materials Engr
Bradley, W. L.

NAG 3-129 Texas A&M University 4475
Investigations into the injection molding of PMR15 polyimide
Period *Obligations*
01/01/81-12/30/82 FY82: \$50,427 TOTAL: \$99,407
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Colaluca, M. LERC/Serafini, J. F. 47-Materials Engr
LERC/Vannucci, R. D.

NAG 3-142 Texas A&M University 4476
Evaluation of reformed methanol as an automotive engine fuel
Period *Obligations*
12/15/80-10/30/82 FY82: TOTAL: \$175,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lalk, T. R. LERC/Bailey, M. M. 46-Mech Engr
Davison, R. R. LERC/Clark, J. S.
Harris, W. B.

NAG 3-181 Texas A&M University 4477
Compressible and incompressible fluid seals: Influence on rotodynamic response and stability
Period *Obligations*
06/01/81-12/14/82 FY82: \$85,827 TOTAL: \$166,611
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Childs, D. W. LERC/Hendricks, R. C. 46-Mech Engr

NAG 3-242 Texas A&M University 4478
Propeller/rotor icing study
Period *Obligations*
12/15/81-12/14/82 FY82: \$41,000 TOTAL: \$41,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Korkan, K. D. LERC/Shaw, R. J. 41-Aero Engr

NAG 3-272 Texas A&M University 4479
Study of air foils for propeller applications
Period *Obligations*
04/15/82-04/14/83 FY82: \$32,000 TOTAL: \$32,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Korkan, K. D. LERC/Hughes, C. E. 41-Aero Engr
LERC/Mikkelsen, D. C.

NAG 3-311 Texas A&M University 4480
Heat transfer and pressure drop in blade cooling channels with turbulence promoters
Period *Obligations*
08/01/82-07/31/83 FY82: \$69,105 TOTAL: \$69,105
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Han, J. C. LERC/Boyle, R. J. 46-Mech Engr
LERC/Stepka, F. S.

NAG 3-314 Texas A&M University 4481
Measurement of the elastic constants of B2 cobalt, nickel and iron aluminides as a function of temperature and composition
Period *Obligations*
09/01/82-08/31/83 FY82: \$46,612 TOTAL: \$46,612
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wolfenden, A. LERC/Whittenberger, J. D. 47-Materials Engr

NAG 5-31 Texas A&M University 4482
Investigation of remote sensing techniques for measuring soil moisture
Period *Obligations*
03/01/80-01/31/83 FY82: \$284,200 TOTAL: \$729,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Newton, R. W. GSFC/Blanchard, B. 32-Geological Sci
Vanbavel, C. H. GSFC/Schmugge, T. J.
Blanchard, A.

NAG 5-94 Texas A&M University 4483
Research of altimetry data over trenches and island arcs and convection
Period *Obligations*
09/01/80-06/30/83 FY82: \$35,000 TOTAL: \$74,662
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jones, G. M. GSFC/Kouns, C. W. 32-Geological Sci
GSFC/Taylor, P. T.

NAS 2-10272 Texas A&M University 4484
Modification of a Swearingen metro wind tunnel model
Period *Obligations*
06/19/79-03/31/83 FY82: TOTAL: \$354,766
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brusse, J. C. ARC/Gambucci, B. J. 41-Aero Engr
ARC/Williams, L. J.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 5-22966 Texas A&M University 4485
Nimbus-G experiment team for coastal zone color scanner
Period Obligations
02/10/76-12/31/82 FY82: \$24,264 TOTAL: \$437,630
Prin. Invest. NASA Tech. Officer CASE Category
El-sayed, S. Z. GSFC/Szajna, E. F. 41-Aero Engr
Trees, C.

NAS 8-33716 Texas A&M University 4492
Space Shuttle main engine fuel turbopump interstage seal test program
Period Obligations
02/29/80-11/30/82 FY82: \$120,229 TOTAL: \$463,676
Prin. Invest. NASA Tech. Officer CASE Category
McDermott, M. MSFC/Garcia, F. F. 46-Mech Engr
MSFC/Gross, L. P.

NAS 5-25846 Texas A&M University 4486
Resolving the agricultural residential image classification conflict
Period Obligations
09/04/79-09/03/80 FY82: TOTAL: \$4,000
Prin. Invest. NASA Tech. Officer CASE Category
Miller, L. GSFC/Toll, D. 32-Geological Sci

NAS 8-33776 Texas A&M University 4493
Diagnostic analysis of the environment of severe storms using atmospheric variability
Period Obligations
02/12/80-02/11/83 FY82: TOTAL: \$80,108
Prin. Invest. NASA Tech. Officer CASE Category
Scoggins, J. R. MSFC/Turner, R. E. 31-Atmos Sci
Turner, R. E. MSFC/Hill, C. K.

NAS 5-26686 Texas A&M University 4487
Acquisition of a multi-frequency radar system
Period Obligations
10/19/81-10/18/83 FY82: \$81,042 TOTAL: \$81,042
Prin. Invest. NASA Tech. Officer CASE Category
Blanchard, A. J. GSFC/Wang, J. R. 45-Elec Engr

NAS 8-34133 Texas A&M University 4494
Satellite ground-based special mesoscale network and data processing
Period Obligations
02/05/81-01/04/83 FY82: \$50,000 TOTAL: \$277,467
Prin. Invest. NASA Tech. Officer CASE Category
Scoggins, J. R. MSFC/Turner, R. E. 31-Atmos Sci
MSFC/Hill, C. K.

NAS 6-2884 Texas A&M University 4488
Study of the dynamics of ocean surface current and Kuroshio circulation
Period Obligations
02/01/78-09/30/82 FY82: TOTAL: \$34,199
Prin. Invest. NASA Tech. Officer CASE Category
Ichiye, T. GSFC/Huang, N. 33-Oceanography

NAS 8-34505 Texas A&M University 4495
Definition of forces on turbomachining rotors
Period Obligations
10/27/81-12/31/82 FY82: \$56,376 TOTAL: \$56,376
Prin. Invest. NASA Tech. Officer CASE Category
Childs, D. W. MSFC/Fox, T. W. 46-Mech Engr
MSFC/Garcia, F. F.

NAS 6-3072 Texas A&M University 4489
Development of a unified thermal and trajectory model for the prediction of high-altitude balloon performance
Period Obligations
02/01/80-03/31/81 FY82: TOTAL: \$49,066
Prin. Invest. NASA Tech. Officer CASE Category
Carlson, L. A. GSFC/Needleman, H. C. 41-Aero Engr
Horn, W. J.

NAS 8-34532 Texas A&M University 4496
Mesoscale observational sounding program
Period Obligations
07/20/81-02/20/83 FY82: TOTAL: \$102,000
Prin. Invest. NASA Tech. Officer CASE Category
Scoggins, J. R. MSFC/Turner, R. E. 31-Atmos Sci
MSFC/Hill, K.

NAS 8-31773 Texas A&M University 4490
The relationship between severe storms and their environment
Period Obligations
01/02/76-06/30/82 FY82: TOTAL: \$351,981
Prin. Invest. NASA Tech. Officer CASE Category
Scoggins, J. R. MSFC/Hill, C. K. 31-Atmos Sci
MSFC/Turner, R. E.

NAS 8-34536 Texas A&M University 4497
Labyrinth seals for Incompressible fluids
Period Obligations
09/30/81-09/29/83 FY82: \$125,000 TOTAL: \$200,000
Prin. Invest. NASA Tech. Officer CASE Category
Morrison, G. L. MSFC/Garcia, F. F. 46-Mech Engr
MSFC/Gross, L. A.

NAS 8-33519 Texas A&M University 4491
X-ray topography study of complex silicone microcircuits
Period Obligations
02/12/80-02/11/81 FY82: TOTAL: \$29,756
Prin. Invest. NASA Tech. Officer CASE Category
Parker, P. L. MSFC/Nowakowski, M. F. 45-Elec Engr
MSFC/Holladay, A. M.

NAS 8-34735 Texas A&M University 4498
Visible infrared spin-scan radiometer atmospheric sounder sounding data evaluation
Period Obligations
07/19/82-07/18/83 FY82: \$61,947 TOTAL: \$61,947
Prin. Invest. NASA Tech. Officer CASE Category
Scoggins, J. R. MSFC/Arnold, J. E. 31-Atmos Sci
MSFC/Wilson, G.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 8-34912 Texas A&M University 4499
 Technical audit of the GPSS model of external tank manufacturing

<i>Period</i>	<i>Obligations</i>	
05/01/82-08/31/82	FY82: \$21,608	TOTAL: \$21,608
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Unavailable	MSFC/Srnelser, J. W.	49-Engr, NEC
	MSFC/McBride, C. H.	

NAS 9-16375 Texas A&M University 4507
 Study of behavioral modifications resulting from exposure to high linear energy transfer (LET) radiation

<i>Period</i>	<i>Obligations</i>	
06/01/81-11/30/82	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hightower, D.	JSC/Barnes, C. M.	56-Medical Sciences

NAS 8-34972 Texas A&M University 4500
 Vas sounding data study

<i>Period</i>	<i>Obligations</i>	
08/26/82-08/25/83	FY82: \$35,000	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huebner, G. L.	MSFC/Arnold, J. E.	31-Atmos Sci
	MSFC/Turner, R. E.	

NAS 9-16403 Texas A&M University 4508
 Verification, through computer simulation, of a wide-swath synthetic aperture radar concept design

<i>Period</i>	<i>Obligations</i>	
06/15/81-07/15/82	FY82:	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jean, R.	JSC/Pels, G. F.	22-Computer Science

NAS 9-13894 Texas A&M University 4501
 Classification techniques evaluation and yield modeling for a large crop inventory project

<i>Period</i>	<i>Obligations</i>	
01/15/74-12/31/82	FY82: \$20,724	TOTAL: \$571,036
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sielken, R. L.	JSC/Browne, I. D.	22-Computer Science

NAS 9-16443 Texas A&M University 4509
 Jet exhaust, ice suppression system validation study

<i>Period</i>	<i>Obligations</i>	
08/05/81-12/01/82	FY82: \$4,673	TOTAL: \$117,673
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Porteiro, J. F.	JSC/Strouhal, G.	49-Engr, NEC
Norton, D. J.		

NAS 9-14689 Texas A&M University 4502
 Application of feature selection

<i>Period</i>	<i>Obligations</i>	
06/01/75-06/30/82	FY82: \$9,967	TOTAL: \$576,185
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heilman, J.	JSC/Browne, I. D.	22-Computer Science

NAS 9-16447 Texas A&M University 4510
 Studies in mathematical pattern recognition and image analysis

<i>Period</i>	<i>Obligations</i>	
09/01/81-10/31/82	FY82:	TOTAL: \$97,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Guseman, L. F., Jr.	JSC/Browne, I. D.	39-Env Sci, NEC
Schumaker, L.	JSC/Heydorn, R. P.	

NAS 9-14828 Texas A&M University 4503
 Lunar sample irradiation services

<i>Period</i>	<i>Obligations</i>	
11/01/75-08/31/83	FY82: \$10,000	TOTAL: \$80,680
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Randall, J. D.	JSC/Blanchard, D.	39-Env Sci, NEC

NAS 9-16556 Texas A&M University 4511
 Develop warning system of crop moisture conditions

<i>Period</i>	<i>Obligations</i>	
02/26/82-10/31/82	FY82: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McFarland, M. J.	JSC/Whitehead, V. S.	22-Computer Science

NAS 9-16102 Texas A&M University 4504
 Development of synthetic aperture radar design approach for wide-swath implementation

<i>Period</i>	<i>Obligations</i>	
04/01/80-07/01/81	FY82:	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jean, B. R.	JSC/Krishen, K.	31-Atmos Sci

NAS 9-16601 Texas A&M University 4512
 Application of GOES thermal data to the crop water stress indicator model

<i>Period</i>	<i>Obligations</i>	
04/28/82-03/31/83	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Franceschini, G.	JSC/Whitehead, V. S.	31-Atmos Sci

NAS 9-16185 Texas A&M University 4505
 Chemical analysis of Martian analog samples

<i>Period</i>	<i>Obligations</i>	
08/01/80-06/30/82	FY82: \$127	TOTAL: \$5,627
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Young, V.	JSC/Gibson, E. K.	12-Chemistry

NAS 9-16664 Texas A&M University 4513
 Mathematical pattern recognition and image analysis program

<i>Period</i>	<i>Obligations</i>	
07/16/82-07/15/83	FY82: \$794,557	TOTAL: \$794,557
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Guseman, L. F., Jr.	JSC/Browne, I. D.	39-Env Sci, NEC

NAS 9-16369 Texas A&M University 4506
 Rangeland information task

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/82	FY82:	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Newton, R. W.	JSC/Hancock, K. J.	55-Agriculture Sci

NAS 9-16674 Texas A&M University 4514
 Scene analysis generic research

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heilman, J. L.	JSC/Browne, I. D.	39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 9-16717	Texas A&M University	4515
Ground scatterometer cross-calibration		
<i>Period</i>	<i>Obligations</i>	
09/08/82-11/30/82	FY82: \$35,000	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blanchard, A. J.	JSC/Nuss, R.	19-Phys Sci, NEC
Newton, R. W.		
NASW 3557	Texas A&M University	4516
Research for and preparation of a manuscript for a NASA special publication, 'NASA mechanical explorers'		
<i>Period</i>	<i>Obligations</i>	
12/01/81-05/31/83	FY82: \$86,325	TOTAL: \$86,325
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nicks, O. W.	HQ-NS/Rowsome, F.	73-History
NCA 2-773101	Texas A&M University	4517
Development of analytical procedures for helicopter rotor tip aerodynamics		
<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/83	FY82: \$30,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hall, G. F.	ARC/Shockey, G. A.	41-Aero Engr
NCA 2-773201	Texas A&M University	4518
Selection study of an acoustic sensing aircraft for in-flight helicopter noise measurements		
<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ward, D. T.	ARC/Shockey, G. A.	41-Aero Engr
Miley, S. J.		
NCC 2-78	Texas A&M University	4519
Studies of advanced wing configurations		
<i>Period</i>	<i>Obligations</i>	
06/01/80-10/31/82	FY82:	TOTAL: \$77,810
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chevalier, H.	ARC/Corsiglia, V. R.	41-Aero Engr
NCC 2-102	Texas A&M University	4520
Air pollutant production by algal cell cultures		
<i>Period</i>	<i>Obligations</i>	
11/01/80-07/15/82	FY82:	TOTAL: \$51,547
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fong, F.	ARC/Zill, L. P.	54-Env Biology
NCC 5-15	Texas A&M University	4521
Determination of the spatial variability in localized precipitation patterns		
<i>Period</i>	<i>Obligations</i>	
06/01/79-11/30/80	FY82:	TOTAL: \$25,272
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, L. D.	GSFC/Schmugge, T. J.	39-Env Sci, NEC
Blanchard, B. J.		
NCC 9-2	Texas A&M University	4522
Analysis of information on shuttle orbiter primary flight software		
<i>Period</i>	<i>Obligations</i>	
01/01/82-06/30/82	FY82: \$92,514	TOTAL: \$92,514
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Simmons, D. B.	JSC/Sykes, D.	29-Math/Computer, NEC
NGR 44-001-117	Texas A&M University	4523
Radiative transfer in realistic planetary atmospheres		
<i>Period</i>	<i>Obligations</i>	
07/19/71-08/31/82	FY82:	TOTAL: \$393,955
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kattawar, G. W.	HQ-EL/Brinton, H. C.	31-Atmos Sci
NGT 44-001-800	Texas A&M University	4524
Summer faculty fellowship program in engineering systems design		
<i>Period</i>	<i>Obligations</i>	
01/01/80-04/30/83	FY82: \$222,950	TOTAL: \$405,913
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Horn, W. J.	HQ-LB/Carter, C. H.	49-Engr, NEC
NGT 44-001-801	Texas A&M University	4525
Shearing of atmospherically driven nearshore dynamics		
<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$12,999	TOTAL: \$34,205
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McGrail, D. W.	HQ-LB/Carter, C. H.	32-Geological Sci
NSG 1174	Texas A&M University	4526
Development of inverse transonic airfoil design methods including boundary layer and viscous interaction effects		
<i>Period</i>	<i>Obligations</i>	
05/01/75-01/31/83	FY82: \$35,000	TOTAL: \$179,641
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Carlson, L. A.	LARC/Everhart, J. L.	41-Aero Engr
	LARC/South, J. C.	
NSG 1407	Texas A&M University	4527
Investigation of the aerodynamics for preventing aircraft stall and the development of technology for stall proof general aviation aircraft		
<i>Period</i>	<i>Obligations</i>	
04/01/77-02/28/81	FY82:	TOTAL: \$94,708
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chevalier, H. L.	LARC/Chambers, J. R.	41-Aero Engr
	LARC/Johnson, J. L.	
NSG 1639	Texas A&M University	4528
Design studies for a technology assessment receiver for the Global Positioning System		
<i>Period</i>	<i>Obligations</i>	
09/01/79-05/31/81	FY82:	TOTAL: \$37,544
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Painter, J. H.	LARC/Hearn, C. P.	45-Elec Engr
Noe, P. S.	LARC/Lytle, C. D.	
Rhyné, V. T.		

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NSG 2226 Texas A&M University 4529
 Applicability of reliability and survivability program-version I to model reliability and survivability characteristics of aircraft weapon systems
Period *Obligations*
 05/01/77-08/31/82 FY82: TOTAL: \$84,768
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Phillips, D. T. ARC/Andre, W. L. 41-Aero Engr
 Foster, J. W.

NSG 5134 Texas A&M University 4530
 Measurement of soil moisture trends with airborne scatterometers
Period *Obligations*
 10/11/76-03/31/82 FY82: TOTAL: \$277,031
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McFarland, J. GSFC/Chang, A. T. 32-Geological Sci

NAG 1-22 Texas Christian University 4531
 Effects of aircraft noise on human activities
Period *Obligations*
 01/01/80-03/31/83 FY82: TOTAL: \$64,331
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Arnoult, M. D. LARC/Powell, C. A. 69-Psych, NEC
 LARC/Key, K. F.

NAG 2-69 Texas Christian University 4532
 Effects of pure tones in intelligibility and pilot workload
Period *Obligations*
 09/01/80-11/30/82 FY82: TOTAL: \$34,527
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Arnoult, M. D. ARC/Huff, E. M. 69-Psych, NEC

NAG 1-28 Texas Tech University 4533
 Lightning sensors and data interpretation
Period *Obligations*
 01/15/80-02/14/83 FY82: \$84,999 TOTAL: \$195,309
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Trost, T. F. LARC/Pitts, F. L. 45-Elec Engr
 Craig, J. P. LARC/Zaepfel, K. P.

NAG 2-189 Texas Tech University 4534
 Nonlinear systems
Period *Obligations*
 10/01/82-09/30/83 FY82: \$31,325 TOTAL: \$31,325
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hunt, L. R. ARC/Meyer, G. 49-Engr, NEC

NAS 9-16606 Texas Tech University 4535
 Create mathematical model of dual passage heat pipes during steady-state and transient operation
Period *Obligations*
 07/15/82-12/15/82 FY82: \$6,000 TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Peterson, G. P. JSC/Rankin, G. 46-Mech Engr

NGT 44-011-800 Texas Tech University 4536
 Equilibrium deprivation and its effects on the nervous system
Period *Obligations*
 06/15/80-09/14/82 FY82: TOTAL: \$22,095
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hartman, H. B. HQ-LB/Carter, C. H. 51-Biological Sci

NSG 2137 Texas Tech University 4537
 Pharmacological prevention of calcium and bone loss
Period *Obligations*
 05/01/76-04/30/83 FY82: \$20,000 TOTAL: \$79,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kenny, A. D. ARC/Holton, E. M. 56-Medical Sciences

NSG 7435 Texas Tech University 4538
 Application of laser ranging and very long base interferometry data to a study of plate tectonic driving forces
Period *Obligations*
 05/01/78-04/30/82 FY82: TOTAL: \$70,488
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hartman, H. B. HQ-EB/Halstead, T. W. 32-Geological Sci

NAG 3-198 University of Houston - Houston 4539
 Investigations of basic mechanisms in aeroacoustics
Period *Obligations*
 07/01/81-06/30/82 FY82: TOTAL: \$55,930
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hussain, A. K. MSFC/Stone, J. R. 41-Aero Engr

NAG 6-18 University of Houston - Houston 4540
 Program to observe X-ray auroral quenching in Waterhole II
Period *Obligations*
 04/01/81-06/30/83 FY82: TOTAL: \$55,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sheldon, W. R. GSFC/Early, L. J. 13-Physics
 Benbrook, J. R. GSFC/Pless, R. H.
 Bering, E. A.

NAGW 39 University of Houston - Houston 4541
 Granule armor on sand dunes
Period *Obligations*
 03/01/80-02/28/82 FY82: TOTAL: \$21,242
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, R. S. HQ-EL/Boyce, J. M. 31-Atmos Sci
 HQ-EL/Quaide, W. L.

NAGW 169 University of Houston - Houston 4542
 Galilean satellite geologic mapping
Period *Obligations*
 04/01/81-03/31/83 FY82: \$9,946 TOTAL: \$20,652
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 King, E. A. HQ-EL/Boyce, J. M. 32-Geological Sci
 HQ-EL/Holt, H. E.

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAGW 178	University of Houston - Houston	4543
High temperature volatilization experiment with materials approximating solar composition		
<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/83	FY82: \$30,067	TOTAL: \$49,939
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
King, E. A.	HQ-EL/Quaide, W. L.	32-Geological Sci
	HQ-EL/Taylor, L. A.	
NAS 2-10087	University of Houston - Houston	4544
Influence of weightlessness on lignification in developing plant seedlings		
<i>Period</i>	<i>Obligations</i>	
11/01/78-12/31/81	FY82:	TOTAL: \$197,958
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cowles, J. R.	ARC/Tremor, J. W.	59-Life Sci, NEC
Scheld, H. W.		
NAS 2-11165	University of Houston - Houston	4545
The influence of weightlessness on lignification in developing plant seedlings		
<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/83	FY82: \$84,641	TOTAL: \$84,641
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cowles, J. R.	ARC/Tremor, J. W.	59-Life Sci, NEC
NAS 8-34955	University of Houston - Houston	4546
Susceptibility apparatus		
<i>Period</i>	<i>Obligations</i>	
08/30/82-01/27/83	FY82: \$7,475	TOTAL: \$7,475
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chu, C. W.	MSFC/Rathz, T. J.	13-Physics
	MSFC/Robinson, M. B.	
NAS 9-11676	University of Houston - Houston	4547
Characterization of heat transfer in nutrient materials		
<i>Period</i>	<i>Obligations</i>	
04/28/71-09/30/83	FY82: \$10,000	TOTAL: \$109,948
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Witte, L. C.	JSC/Sauer, R. L.	59-Life Sci, NEC
NAS 9-15882	University of Houston - Houston	4548
Analysis of volatile metabolites in biological fluids as indicators of prodromal disease conditions		
<i>Period</i>	<i>Obligations</i>	
06/01/79-12/31/81	FY82:	TOTAL: \$79,948
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zlatkis, A.	JSC/Schneider, H. J.	51-Biological Sci
NAS 9-15944	University of Houston - Houston	4549
Design of a food service habitat for a large scale space station		
<i>Period</i>	<i>Obligations</i>	
08/23/79-03/20/82	FY82:	TOTAL: \$36,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bell, L.	JSC/Smith, M. C.	99-Multi-Discip
NAS 9-16351	University of Houston - Houston	4550
Development of high resolution gas chromatograph capillary column for analysis of airborne contaminants		
<i>Period</i>	<i>Obligations</i>	
04/01/81-03/31/82	FY82:	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Zlatkis, A.	JSC/Coleman, M.	12-Chemistry
NAS 9-16593	University of Houston - Houston	4551
Food service habitat for the space operation center		
<i>Period</i>	<i>Obligations</i>	
03/21/82-03/20/83	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rappole, C.	JSC/Smith, N. C.	99-Multi-Discip
NGR 44-005-002	University of Houston - Houston	4552
Studies in organic cosmochemistry, including consideration of compound formation under primitive Earth conditions and of organic material in selected meteorites		
<i>Period</i>	<i>Obligations</i>	
06/18/62-01/31/83	FY82: \$35,000	TOTAL: \$1,275,590
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Oro, J.	HQ-EB/Devincenzi, D. L.	32-Geological Sci
NGT 44-005-115	University of Houston - Houston	4553
Summer faculty fellowship program in research		
<i>Period</i>	<i>Obligations</i>	
05/06/74-03/31/82	FY82:	TOTAL: \$1,439,126
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Huang, C. J.	HQ-LB/Carter, C. H.	49-Engr, NEC
NGT 44-005-800	University of Houston - Houston	4554
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
09/01/80-08/31/83	FY82: \$13,000	TOTAL: \$37,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Middleditch, B. S.	HQ-LB/Carter, C. H.	19-Phys Sci, NEC
NGT 44-005-801	University of Houston - Houston	4555
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: \$12,300	TOTAL: \$24,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fox, G. E.	HQ-LB/Carter, C. H.	59-Life Sci, NEC
NSG 1475	University of Houston - Houston	4556
The large-scale coherent structure in the circular jet		
<i>Period</i>	<i>Obligations</i>	
12/01/77-11/30/81	FY82:	TOTAL: \$110,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nadkarni, A. A.	LARC/Maestrello, L.	41-Aero Engr
NSG 1603	University of Houston - Houston	4557
Investigation of algorithms for large space structures		
<i>Period</i>	<i>Obligations</i>	
03/15/79-10/31/82	FY82:	TOTAL: \$87,730
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Denman, E. D.	LARC/Horner, G. C.	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NSG 2337 University of Houston - Houston 4558
The high Reynolds number free shear layer (behind a backward facing step)
Period *Obligations*
09/01/78-07/31/82 FY82: TOTAL: \$252,420
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hussain, A. K. ARC/Viegas, J. R. 47-Materials Engr
Kleis, S. J.

NSG 9043 University of Houston - Clear Lake 4565
Cosmic ray and solar flare irradiation history of regolith crystals and agglutinates
Period *Obligations*
06/01/76-05/31/83 FY82: \$15,000 TOTAL: \$149,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blanford, G. E. JSC/Dietrich, J. W. 13-Physics

NSG 7440 University of Houston - Houston 4559
Evolutionary relationships in the microbial world
Period *Obligations*
06/01/78-06/30/83 FY82: \$56,000 TOTAL: \$247,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fox, G. E. HQ-EB/Devincenzi, D. L. 51-Biological Sci

NSG 3255 University of Texas - Arlington 4566
Generator (MHD) off-design performance with NOX chemical kinetics analysis
Period *Obligations*
03/01/79-07/31/82 FY82: TOTAL: \$93,149
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, D. R. LERC/Smith, J. M. 49-Engr, NEC

NSG 7551 University of Houston - Houston 4560
Mars: Significance of large open spaces within the north polar dune fields
Period *Obligations*
04/01/79-03/31/82 FY82: TOTAL: \$36,903
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, R. HQ-EL/Boyce, J. M. 32-Geological Sci
HQ-EL/Quaide, W. L.

NAG 1-79 University of Texas - Austin 4567
A theoretic study of splines under tension
Period *Obligations*
06/10/80-10/31/82 FY82: TOTAL: \$43,972
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cline, A. K. LARC/Schiess, J. R. 22-Computer Science

NSG 7609 University of Houston - Houston 4561
Measure electron precipitation induced by barium injections in the magnetosphere: Flight of parachute deployed payloads during the barium GEOS experiment
Period *Obligations*
08/01/79-07/31/81 FY82: TOTAL: \$42,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sheldon, W. R. HQ-EZ/Schmerling, E. R. 19-Phys Sci, NEC

NAG 2-5 University of Texas - Austin 4568
Finite elements and Navier-Stokes problems
Period *Obligations*
10/01/79-12/31/81 FY82: TOTAL: \$12,702
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carey, G. F. ARC/Lasinski, T. A. 41-Aero Engr

NSG 9042 University of Houston - Houston 4562
Aromatic biosynthesis in pine tissues
Period *Obligations*
04/01/76-06/30/83 FY82: \$30,000 TOTAL: \$209,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cowles, J. R. HQ-EB/Halstead, T. W. 51-Biological Sci

NAG 2-67 University of Texas - Austin 4569
Density and temperature structure of clouds around low luminosity young stars
Period *Obligations*
09/01/80-01/14/83 FY82: \$186,900 TOTAL: \$318,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harvey, P. M. ARC/Haughney, L. C. 11-Astronomy

NAS 9-16136 University of Houston - Clear Lake 4563
Analysis of physical exercise and exercise protocols for space transportation system operation
Period *Obligations*
09/01/80-12/31/82 FY82: TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coleman, A. E. JSC/Bungo, M. 56-Medical Sciences

NAG 2-133 University of Texas - Austin 4570
Spectroscopy of molecular clouds at 5-8 microns from the Kuiper Airborne Observatory
Period *Obligations*
10/01/81-09/30/83 FY82: TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Evans, N. J. ARC/Haughney, L. C. 11-Astronomy

NAS 9-16422 University of Houston - Clear Lake 4564
Study entitled performance and analysis of JSC ground scatterometer system
Period *Obligations*
06/01/81-09/30/82 FY82: \$2,500 TOTAL: \$22,050
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dickerson, E. T. JSC/Fenner, R. G. 11-Astronomy

NAG 2-137 University of Texas - Austin 4571
Determinants of individual and group performance
Period *Obligations*
12/01/81-11/30/82 FY82: \$90,000 TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Helmreich, R. L. ARC/Patton, R. M. 62-Social Aspects

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAG 2-199 University of Texas - Austin 4572
Far-infrared photometry of molecular clouds in the outer galaxy from the Kuiper Airborne Observatory

<i>Period</i>	<i>Obligations</i>	
10/01/82-09/30/83	FY82: \$9,528	TOTAL: \$9,528
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Evans, N. J., II	ARC/Haughney, L. C.	11-Astronomy
Kutner, M. L.		

NAG 5-258 University of Texas - Austin 4579
The continuum energy distributions in quasars

<i>Period</i>	<i>Obligations</i>	
10/10/82-09/30/83	FY82: \$1,916	TOTAL: \$1,916
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wills, B. J.	GSFC/Kondo, Y.	11-Astronomy
Wills, D.		
Netzer, H.		

NAG 3-210 University of Texas - Austin 4573
Statistical approaches to linear dynamic analysis of aero-structures

<i>Period</i>	<i>Obligations</i>	
12/18/81-12/17/82	FY82: \$29,533	TOTAL: \$29,533
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spanos, P. D.	LERC/Chamis, C. C.	41-Aero Engr
	LERC/Hirschbein, M. S.	

NAG 8-404 University of Texas - Austin 4580
Time variations of X-ray emission of Delta Cephei stars

<i>Period</i>	<i>Obligations</i>	
06/18/81-06/17/82	FY82:	TOTAL: \$6,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parsons, S. B.	MSFC/Stone, J. F.	11-Astronomy
Bohm-vitense, E.		

NAG 3-303 University of Texas - Austin 4574
Energy stores and associated switches for earth-to-space rail-launcher systems

<i>Period</i>	<i>Obligations</i>	
10/01/82-09/30/83	FY82: \$53,915	TOTAL: \$53,915
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Weldon, W. F.	LERC/Brasher, M. R.	45-Elec Engr

NAG 9-11 University of Texas - Austin 4581
Tectonic analysis of the San Luis Basin segment of the Rio Grande rift

<i>Period</i>	<i>Obligations</i>	
06/01/80-05/31/83	FY82:	TOTAL: \$35,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Muehliberger, W. R.	JSC/Blanchard, D. P.	32-Geological Sci

NAG 3-317 University of Texas - Austin 4575
Development of a transonic cascade flow analysis code using viscous/inviscid coupling concepts

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$59,990	TOTAL: \$59,990
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dulikravic, G. S.	LERC/Sockol, P. M.	41-Aero Engr

NAGW 233 University of Texas - Austin 4582
Fiducial reference for the Hipparcos reference system

<i>Period</i>	<i>Obligations</i>	
09/01/81-08/31/83	FY82:	TOTAL: \$18,498
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Duncombe, R. L.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Bogges, N. W.	

NAG 3-329 University of Texas - Austin 4576
Analysis and development of finite elements methods for the study of nonlinear thermomechanical behavior of structural components

<i>Period</i>	<i>Obligations</i>	
09/20/82-09/19/83	FY82: \$63,446	TOTAL: \$63,446
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Oden, J. T.	LERC/Chamis, C. C.	41-Aero Engr
	LERC/Johns, R. H.	

NAGW 286 University of Texas - Austin 4583
Planetary studies

<i>Period</i>	<i>Obligations</i>	
01/01/82-08/31/82	FY82: \$22,926	TOTAL: \$22,926
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, R. S.	HQ-EL/Boyce, J. M.	32-Geological Sci
	HQ-EL/Holt, H. E.	

NAG 5-80 University of Texas - Austin 4577
Abundance effects on mass loss in selected stars

<i>Period</i>	<i>Obligations</i>	
07/01/80-04/30/83	FY82:	TOTAL: \$9,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Parsons, S. B.	GSFC/Kondo, Y.	11-Astronomy
Wray, J. D.		
Bruhweiler, F. C.		

NAS 5-25656 University of Texas - Austin 4584
Space telescope/high resolution spectrograph

<i>Period</i>	<i>Obligations</i>	
05/09/79-04/01/85	FY82: \$7,784	TOTAL: \$17,784
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Trafton, L. M.	GSFC/Vitagliano, H. D.	11-Astronomy

NAG 5-173 University of Texas - Austin 4578
Observations of weak G-band stars

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/82	FY82:	TOTAL: \$550
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Snedden, C.	GSFC/Bogges, A.	11-Astronomy

NAS 5-25898 University of Texas - Austin 4585
Satellite ranging data analysis Lageos geodynamics experiment

<i>Period</i>	<i>Obligations</i>	
11/21/79-09/21/81	FY82:	TOTAL: \$49,090
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shelus, P. J.	GSFC/Stephanides, C. C.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 5-25948 **University of Texas - Austin** **4588**
Operation and management of the lunar and satellite laser ranging ground station equipment at McDonald Observatory, Texas

<i>Period</i>	<i>Obligations</i>	
11/15/79-09/30/83	FY82: \$1,059,000	TOTAL: \$2,733,784
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silverberg, E. C.	GSFC/Adelman, A. G.	11-Astronomy

NAS 5-25991 **University of Texas - Austin** **4587**
Solid Earth dynamics using laser geodynamics satellite range observations

<i>Period</i>	<i>Obligations</i>	
12/27/79-03/26/83	FY82: \$269,000	TOTAL: \$269,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tapley, B.	GSFC/Stephanides, C. C.	19-Phys Sci, NEC

NAS 5-26955 **University of Texas - Austin** **4588**
Investigation satellite laser ranging applications to crustal dynamics

<i>Period</i>	<i>Obligations</i>	
04/07/82-04/06/84	FY82: \$70,000	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tapley, B. D.	GSFC/Mead, G. D.	32-Geological Sci

NAS 5-27235 **University of Texas - Austin** **4589**
Crustal dynamics and earthquake research

<i>Period</i>	<i>Obligations</i>	
05/27/82-05/27/84	FY82: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shelus, P. J.	GSFC/Mead, G. D.	32-Geological Sci

NAS 8-32905 **University of Texas - Austin** **4590**
Scientific investigation in support of the space telescope project

<i>Period</i>	<i>Obligations</i>	
02/15/78-12/31/84	FY82: \$285,400	TOTAL: \$285,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lambert, D. L.	MSFC/O'dell, C. R.	11-Astronomy

NAS 8-32906 **University of Texas - Austin** **4591**
Scientific investigations in support of the space telescope project, to assure that the space telescope will perform astrometric functions

<i>Period</i>	<i>Obligations</i>	
02/01/78-12/31/84	FY82: \$271,000	TOTAL: \$1,121,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jefferys, W. H.	MSFC/O'dell, C. R.	11-Astronomy

NAS 8-33980 **University of Texas - Austin** **4592**
Multishaker model testing

<i>Period</i>	<i>Obligations</i>	
09/15/80-08/31/83	FY82: \$91,229	TOTAL: \$91,229
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Craig, R. C.	MSFC/Kiefling, L. A. MSFC/Ivey, E. W.	49-Engr, NEC

NAS 9-13680 **University of Texas - Austin** **4593**
Assessment of real gas effects on the extrapolation of shuttle flow field phenomena to flight conditions

<i>Period</i>	<i>Obligations</i>	
09/27/73-08/01/83	FY82: \$42,000	TOTAL: \$283,985
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bertin, J. J.	JSC/Goodrich, W. D.	41-Aero Engr

NAS 9-14491 **University of Texas - Austin** **4594**
Adsorption pumping cryogenic refrigeration study

<i>Period</i>	<i>Obligations</i>	
02/10/75-08/31/80	FY82: \$372,912	TOTAL: \$372,912
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hartwig, W. H.	JSC/Richard, R. R. JSC/Nuss, R. W.	49-Engr, NEC

NAS 9-15217 **University of Texas - Austin** **4595**
Imaging radar math model and airborne imaging radar data collecting system

<i>Period</i>	<i>Obligations</i>	
12/15/76-10/31/80	FY82: \$230,687	TOTAL: \$230,687
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tucker, A. J.	JSC/Pels, G. F.	49-Engr, NEC

NAS 9-15567 **University of Texas - Austin** **4596**
Interaction of numerical and dynamical stability

<i>Period</i>	<i>Obligations</i>	
04/26/78-12/31/80	FY82: \$21,935	TOTAL: \$21,935
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Szebekely, V. G.	JSC/Bond, V.	12-Chemistry

NAS 9-16086 **University of Texas - Austin** **4597**
Solar power satellite microwave/ionosphere interaction study

<i>Period</i>	<i>Obligations</i>	
03/01/80-12/01/80	FY82: \$38,756	TOTAL: \$38,756
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Clynych, J.	JSC/Seyl, J. W.	31-Atmos Sci

NAS 9-16104 **University of Texas - Austin** **4598**
Development of software for synthetic aperture radar (SAR) digital data processing

<i>Period</i>	<i>Obligations</i>	
05/01/80-03/31/81	FY82: \$17,249	TOTAL: \$17,249
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Griffin, C. R.	JSC/Pels, G. F.	29-Math/Computer, NEC

NAS 9-16171 **University of Texas - Austin** **4599**
Mathematical modeling and simulation of the advanced synthetic aperture radar (ASAR) project

<i>Period</i>	<i>Obligations</i>	
08/01/80-09/01/81	FY82: \$34,497	TOTAL: \$34,497
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Griffin, C. R.	JSC/Krishen, K.	21-Mathematics

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 9-16208	University of Texas - Austin	4600
Digital correlation of Apq-102A X-band radar imagery, and SAR software support		
<i>Period</i>	<i>Obligations</i>	
10/01/80-09/30/81	FY82: TOTAL: \$24,449	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Griffin, C. R.	JSC/Alexander, J. D.	29-Math/Cmputer,NEC
NAS 9-16221	University of Texas - Austin	4601
Study numerical methods for ground simulation of satellite motion stability		
<i>Period</i>	<i>Obligations</i>	
09/17/80-03/15/82	FY82: TOTAL: \$5,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Broucke, R.	JSC/Bond, V.	29-Math/Cmputer,NEC
NAS 9-16308	University of Texas - Austin	4602
Study entitled 'lifetime analysis of geosynchronous'		
<i>Period</i>	<i>Obligations</i>	
01/30/81-10/31/81	FY82: TOTAL: \$4,999	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nacozy, P. E.	JSC/Bond, V.	42-Astro Engr
NAS 9-16348	University of Texas - Austin	4603
Study of collision dangers for spacecraft		
<i>Period</i>	<i>Obligations</i>	
05/01/81-05/30/82	FY82: TOTAL: \$9,800	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Szebehely, V. G.	JSC/Kessler, D. J.	29-Math/Cmputer,NEC
NAS 9-16437	University of Texas - Austin	4604
Computer simulation for multibeam squitmode synthetic aperture radar		
<i>Period</i>	<i>Obligations</i>	
09/28/81-06/30/82	FY82: TOTAL: \$13,934	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tucker, A. J.	JSC/Krishen, K.	29-Math/Cmputer,NEC
NAS 9-16497	University of Texas - Austin	4605
Apq-102 imaging radar digital image quality study		
<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$44,955 TOTAL: \$44,955	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Griffin, C. R.	JSC/Pels, G. F.	29-Math/Cmputer,NEC
NAS 9-16744	University of Texas - Austin	4606
Dynamics analysis of electrodynamic satellite tethers		
<i>Period</i>	<i>Obligations</i>	
10/01/82-09/30/83	FY82: \$13,000 TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nacozy, P. E.	JSC/McCoy, J. E.	46-Mech Engr
NASW 3298	University of Texas - Austin	4607
The contractor shall design, develop, construct and test a fully operational lunar laser ranging station		
<i>Period</i>	<i>Obligations</i>	
12/01/79-10/01/82	FY82: \$33,369 TOTAL: \$605,359	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Silverberg, E.	GSFC/Hughes, W. E.	42-Astro Engr
NASW 3388	University of Texas - Austin	4608
Study involving satellite and terrestrial propagation measurements and analysis		
<i>Period</i>	<i>Obligations</i>	
07/15/80-07/14/81	FY82: TOTAL: \$80,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Vogel, W.	HQ-EC/Ippolito, L. J.	45-Elec Engr
NASW 3663	University of Texas - Austin	4609
The role of calcium in regulating the responses of cells and tissues to external stimuli and the potential role of calcium in mediating gravitational responses in plants and animals		
<i>Period</i>	<i>Obligations</i>	
08/01/82-04/30/83	FY82: \$25,367 TOTAL: \$25,367	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Roux, S. J.	HQ-EB/Halstead, T. W.	51-Biological Sci
NCA 2-781201	University of Texas - Austin	4610
Studies of far-infrared emission lines in planetary nebulae and of the polarization properties of infrared clusters		
<i>Period</i>	<i>Obligations</i>	
09/15/82-03/15/83	FY82: \$5,503 TOTAL: \$5,503	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shields, G.	ARC/Werner, M. W.	11-Astronomy
NCC 2-189	University of Texas - Austin	4611
Measurement and modeling of compressible flow fields		
<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$30,567 TOTAL: \$30,567	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bertin, J. J.	ARC/Marvin, J. G.	41-Aero Engr
Bouslog, S. A.	ARC/Horstman, C. C.	
NGR 44-012-152	University of Texas - Austin	4612
A program of planetary studies		
<i>Period</i>	<i>Obligations</i>	
06/25/69-12/31/82	FY82: \$430,000 TOTAL: \$5,307,186	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, H. J.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Brinton, H. C.	
NGR 44-012-282	University of Texas - Austin	4613
Outer planet satellite studies		
<i>Period</i>	<i>Obligations</i>	
09/01/73-10/31/81	FY82: TOTAL: \$306,193	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mulholland, J. D.	HQ-EL/Brunk, W. E.	11-Astronomy
	HQ-EL/Murphy, R. E.	
NGT 44-012-800	University of Texas - Austin	4614
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$4,100 TOTAL: \$4,100	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, D.	HQ-LB/Carter, C. H.	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NGT 44-089-980 Univ of Texas-Grad School of Biomed Sci. 4629

Aerospace medicine residency program

<i>Period</i>	<i>Obligations</i>	
01/01/80-03/31/82	FY82: TOTAL: \$28,097	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Key, M. M.	HQ-EB/Nicogossian, A. E.	56-Medical Sciences

NAG 1-251 University of Texas - Dallas 4630

Investigate performance of miniature valves under shuttle flight environments

<i>Period</i>	<i>Obligations</i>	
01/19/82-05/18/82	FY82: \$6,009 TOTAL: \$6,009	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hoffman, J. H.	LARC/Blanchard, R. C. LARC/Jones, J. J.	19-Phys Sci, NEC

NAG 1-256 University of Texas - Dallas 4631

Outgassing and decomposition of Space Shuttle heat protection tiles, fillers and adhesive

<i>Period</i>	<i>Obligations</i>	
02/01/82-07/31/83	FY82: \$29,003 TOTAL: \$29,003	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hoffman, J. H.	LARC/Blanchard, R. C. LARC/Jones, J. J.	19-Phys Sci, NEC

NAG 5-138 University of Texas - Dallas 4632

Research relative to plasma sheet processes associated with discrete auroral arcs

<i>Period</i>	<i>Obligations</i>	
02/01/81-06/30/83	FY82: TOTAL: \$22,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heikkila, W. J.	GSFC/Spencer, N. W.	31-Atmos Sci

NAG 5-226 University of Texas - Dallas 4633

Research relative to plasma transport across the magnetopause

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$25,000 TOTAL: \$25,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heikkila, W. J.	GSFC/Wales, R. O.	11-Astronomy

NAGW 53 University of Texas - Dallas 4634

Studies of impulsive penetration and viscous interactions

<i>Period</i>	<i>Obligations</i>	
02/01/80-06/30/83	FY82: TOTAL: \$57,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heikkila, W. J.	HQ-EE/Benson, R. F. HQ-EE/Schmerling, E. R.	19-Phys Sci, NEC

NAGW 64 University of Texas - Dallas 4635

Analysis of data from the Pioneer Venus sounder probe mass spectrometer

<i>Period</i>	<i>Obligations</i>	
04/01/80-02/28/82	FY82: TOTAL: \$83,313	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hoffman, J. H.	HQ-EL/Murphy, R. E. HQ-EL/Brunk, W. E.	31-Atmos Sci

NAS 5-11406 University of Texas - Dallas 4636

Atmosphere Explorer magnetic ion mass spectrometer

<i>Period</i>	<i>Obligations</i>	
04/06/71-09/30/82	FY82: \$154,107 TOTAL: \$2,120,973	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hoffman, J. H.	GSFC/Bullock, E. D.	31-Atmos Sci

NAS 5-11407 University of Texas - Dallas 4637

Planar ion trap experiment

<i>Period</i>	<i>Obligations</i>	
04/06/71-09/30/82	FY82: \$80,176 TOTAL: \$2,434,109	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hanson, W. B.	GSFC/Bullock, G. D.	31-Atmos Sci

NAS 5-24297 University of Texas - Dallas 4638

Ion drift meter for the Dynamic Explorer

<i>Period</i>	<i>Obligations</i>	
07/26/77-09/30/81	FY82: \$7,320 TOTAL: \$510,128	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heelis, R. A.	GSFC/Fellerman, K. D.	13-Physics

NAS 5-24298 University of Texas - Dallas 4639

Retarding potential analyzer for the Dynamic Explorer

<i>Period</i>	<i>Obligations</i>	
07/26/77-07/31/83	FY82: \$5,933 TOTAL: \$538,015	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hanson, W. B.	GSFC/Fellerman, K. D.	13-Physics
Heelis, R. A.	GSFC/Lidston, J. M.	

NAS 5-24299 University of Texas - Dallas 4640

Low altitude plasma instrument for Dynamics Explorer (DE)

<i>Period</i>	<i>Obligations</i>	
11/21/77-07/31/83	FY82: TOTAL: \$851,561	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winningham, J. D.	GSFC/Fellerman, K. D.	13-Physics
Klumper, D. M.		

NAS 5-25310 University of Texas - Dallas 4641

Design, development, fabrication, test and calibration of the ion velocity instrument for the San Marco spacecraft

<i>Period</i>	<i>Obligations</i>	
09/18/78-04/30/83	FY82: \$78,000 TOTAL: \$234,664	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hanson, W. B.	GSFC/Caporale, A. J.	13-Physics

NAS 5-26068 University of Texas - Dallas 4642

Ion drift meter instrument data analysis for Dynamics Explorer

<i>Period</i>	<i>Obligations</i>	
02/04/80-07/31/83	FY82: \$139,000 TOTAL: \$255,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Heelis, R. A.	GSFC/Bullock, G.	41-Aero Engr

NAS 5-26070 University of Texas - Dallas 4643

Low altitude plasma investigation data analysis for Dynamics Explorer

<i>Period</i>	<i>Obligations</i>	
02/10/80-07/31/84	FY82: TOTAL: \$4,267	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Winningham, J. D.	GSFC/Hoffman, R. A.	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAS 5-26071 **University of Texas - Dallas** **4644**
Retarding potential analyzer instrument for Dynamics Explorer
Period *Obligations*
02/10/80-07/31/84 FY82: \$147,000 TOTAL: \$280,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. GSFC/Bullock, G. D. 41-Aero Engr

NASW 3576 **University of Texas - Dallas** **4651**
Development of a mass and energy spectrometer system for
analysis of gaseous environment
Period *Obligations*
03/15/82-09/30/86 FY82: \$160,000 TOTAL: \$160,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. HQ-EL/Brunk, W. E. 11-Astronomy
HQ-EL/Brinton, H. C.

NAS 5-26174 **University of Texas - Dallas** **4645**
The study of ion convection electrodynamic for the upper
atmosphere research satellites (UARS) program
Period *Obligations*
10/02/80-12/31/81 FY82: TOTAL: \$177,739
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heelis, R. A. GSFC/Piterski, N. 31-Atmos Sci

NGL 44-004-026 **University of Texas - Dallas** **4652**
Investigations into the mechanism and rates of atmospheric
mixing in the lower thermosphere
Period *Obligations*
05/05/65-03/31/83 FY82: \$262,142 TOTAL: \$2,844,573
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

NAS 5-26309 **University of Texas - Dallas** **4646**
Magsat science investigation: Investigation of the effects of
external current systems on the Magsat data utilizing grid cell
modeling techniques
Period *Obligations*
09/15/80-11/15/82 FY82: \$14,000 TOTAL: \$65,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Klumpar, D. M. GSFC/Oseroff, H. 32-Geological Sci
Kisabeth, J. L.

NGL 44-004-130 **University of Texas - Dallas** **4653**
Selected studies in the space sciences
Period *Obligations*
03/17/72-03/31/83 FY82: \$100,000 TOTAL: \$2,300,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. HQ-E/Gaskins, M. A. 99-Multi-Discip
McClure, J. P. HQ-E/Devlin, J.
Hodges, R. R.

NAS 8-31775 **University of Texas - Dallas** **4647**
Study of ATS 6 and OGO 5 data analysis
Period *Obligations*
03/18/76-12/31/81 FY82: TOTAL: \$78,933
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. MSFC/Chappell, C. R. 19-Phys Sci, NEC
MSFC/Fields, S. A.

NGR 44-004-120 **University of Texas - Dallas** **4654**
Rocket probes for the upper F-region
Period *Obligations*
02/09/71-01/31/83 FY82: \$100,000 TOTAL: \$1,325,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. HQ-EZ/Mayr, H. G. 31-Atmos Sci
HQ-EZ/Schmerling, E. R.

NAS 8-32831 **University of Texas - Dallas** **4648**
Retarding ion mass spectrometer for Dynamics Explorer
Period *Obligations*
01/17/78-10/31/83 FY82: \$42,524 TOTAL: \$835,709
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hanson, W. B. MSFC/Chappell, C. R. 13-Physics
Rodman, J. H. MSFC/Fields, S. A.

NSG 5085 **University of Texas - Dallas** **4655**
Particle spectrometer on board ISIS-2
Period *Obligations*
11/01/75-04/30/83 FY82: \$30,000 TOTAL: \$245,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heikkila, W. J. GSFC/Brace, L. H. 31-Atmos Sci
Klumpar, D. M.

NAS 8-33827 **University of Texas - Dallas** **4649**
Measurement of visible and UV emissions from energetic neutral
atom precipitation definition phase study
Period *Obligations*
08/12/80-10/31/82 FY82: TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tinsley, B. A. MSFC/Jones, C. T. 31-Atmos Sci

NSG 5087 **University of Texas - Dallas** **4656**
Ion composition research on ISIS-2
Period *Obligations*
12/01/75-07/31/83 FY82: \$25,000 TOTAL: \$190,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. GSFC/Brace, L. H. 31-Atmos Sci
Dodson, W. H.

NAS 8-35011 **University of Texas - Dallas** **4650**
Definition phase for thermal ion dynamics experiment for OPEN
Period *Obligations*
08/26/82-11/09/83 FY82: \$20,896 TOTAL: \$20,896
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Higlis, R. A. MSFC/Chappell, R. 11-Astronomy
Holman, J. H. MSFC/Russell, L. W.
Hanson, W. B.

NSG 5280 **University of Texas - Dallas** **4657**
Electrodynamic coupling in the ionosphere magnetosphere
system
Period *Obligations*
07/01/78-12/31/82 FY82: TOTAL: \$74,178
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Klumpar, D. M. GSFC/Spencer, N. W. 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NSG 7034 University of Texas - Dallas 4658
Investigation of the daytime lunar atmosphere for lunar synthesis program
Period *Obligations*
04/01/74-12/31/82 FY82: TOTAL: \$399,133
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hodges, R. R., Jr. HQ-EL/Quaide, W. L. 31-Atmos Sci

NAGW 204 University of Texas - El Paso 4659
A theoretical model study of tidal stress and other heating mechanisms of Io
Period *Obligations*
05/20/81-08/20/82 FY82: TOTAL: \$34,626
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lawson, J. O. HQ-EL/Quaide, W. L. 13-Physics
Bruce, R. E. HQ-LC/Pohly, J. G.

NAS 5-26326 University of Texas - El Paso 4660
Application of MAGSAT to lithospheric modeling in South America; Synthesis of geologic and seismic data for development of integrated crustal models for development of integrated crustal models
Period *Obligations*
10/02/80-02/02/83 FY82: \$11,500 TOTAL: \$51,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Keller, E. R. GSFC/Oseroff, H. 32-Geological Sci
Lidiak, E. G.

NCC 4-4 University of Texas - El Paso 4661
Research on the application of electrical and information technologies to flight testing
Period *Obligations*
09/01/81-08/31/82 FY82: TOTAL: \$60,197
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Riter, S. DFRF/Albers, J. A. 41-Aero Engr

NSG 9062 University of Texas - El Paso 4662
Occurrence and mineral chemistry of high pressure phases
Period *Obligations*
06/01/78-05/31/82 FY82: TOTAL: \$47,374
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffer, J. M. JSC/Duke, M. 12-Chemistry

NAG 2-26 Univ of Texas Medical Branch - Galveston 4663

Central otolithic mechanisms in non-human primates
Period *Obligations*
01/01/80-12/31/82 FY82: \$55,000 TOTAL: \$125,103
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Perachio, A. A. ARC/Daunton, N. G. 51-Biological Sci
Carreta, M. J.

NAG 2-183 Univ of Texas Medical Branch - Galveston 4664

Space platform science conferences
Period *Obligations*
04/01/82-12/31/82 FY82: \$45,826 TOTAL: \$45,826
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fabricant, J. D. ARC/Gomersall, E. W. 59-Life Sci, NEC

NAG 2-186 Univ of Texas Medical Branch - Galveston 4665

Investigations of otolith responses using ground based vestibular research facility
Period *Obligations*
07/01/82-06/30/83 FY82: \$63,582 TOTAL: \$63,582
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Corrgia, M. J. ARC/Davinton, N. G. 51-Biological Sci
Perachio, A. A.
Anderson, D. J.

NAS 2-10502 Univ of Texas Medical Branch - Galveston 4666

Anatomical and electrophysiological studies of the effects of weightlessness on the vestibular apparatus of the gerbil
Period *Obligations*
01/17/80-01/18/82 FY82: TOTAL: \$38,503
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Correia, M. J. ARC/Ferandin, J. 51-Biological Sci
ARC/Donaldson, R.

NAS 5-25897 Univ of Texas Medical Branch - Galveston 4667

Earth strain measurements with transportable laser ranging system: Field techniques and planning laser geodynamics
Period *Obligations*
12/14/79-11/15/82 FY82: TOTAL: \$55,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nakamura, Y. GSFC/Stephanides, C. C. 32-Geological Sci

NAS 9-14641 Univ of Texas Medical Branch - Galveston 4668

Analysis of spontaneous vestibular primary afferent discharge following application of drugs
Period *Obligations*
05/01/75-03/31/83 FY82: \$80,000 TOTAL: \$357,850
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Correia, M. J. JSC/Reschke, M. F. 69-Psych, NEC

NAS 9-15565 Univ of Texas Medical Branch - Galveston 4669

Micro assay for catecholamine concentration in body fluids
Period *Obligations*
03/27/78-09/30/80 FY82: TOTAL: \$11,188
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ziegler, M. G. JSC/Leach, C. S. 59-Life Sci, NEC

NGT 44-088-800 Univ of Texas Medical Branch - Galveston 4670

Graduate student researchers program
Period *Obligations*
09/01/81-08/31/83 FY82: \$13,000 TOTAL: \$26,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Correia, M. J. HQ-LB/Carter, C. H. 51-Biological Sci

NSG 7418 Univ of Texas Medical Branch - Galveston 4671

Lunar seismic data analysis
Period *Obligations*
02/01/78-06/30/82 FY82: TOTAL: \$739,378
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Makamura, Y. HQ-EL/Quaide, W. L. 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

NAGW 140 Univ of Texas, Health Sci Ctr-Dallas 4672
Influence of suspension-hypokinesia on skeletal/ muscle

<i>Period</i>	<i>Obligations</i>	
02/01/81-01/31/83	FY82: \$55,000	TOTAL: \$106,499
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Templeton, G. H.	HQ-EB/Halstead, T. W.	51-Biological Sci
Sutko, J. L.		

NAS 9-16044 Univ of Texas, Health Sci Ctr-Dallas 4673
Cardiovascular adaption to zero gravity

<i>Period</i>	<i>Obligations</i>	
01/17/80-12/01/82	FY82: \$70,345	TOTAL: \$100,466
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blomquist, C. G.	JSC/Lintott, J.	59-Life Sci, NEC

NSG 9026 Univ of Texas, Health Sci Ctr-Dallas 4674
Cardiovascular effect of variations in habitual levels of physical activity

<i>Period</i>	<i>Obligations</i>	
03/01/75-05/31/83	FY82: \$62,000	TOTAL: \$451,930
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Blomquist, C. G.	JSC/Bungo, M.	56-Medical Sciences

NAG 9-23 Univ. of Texas-Hlth Science Ctr-Houston 4675
The factors determining the incidence of limb bends upon decompression to altitude

<i>Period</i>	<i>Obligations</i>	
04/01/82-03/31/83	FY82: \$57,517	TOTAL: \$57,517
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hills, B. A.	JSC/Waligora, J.	51-Biological Sci

NAS 9-15388 Univ. of Texas-Hlth Science Ctr-Houston 4676
Biochemical adaptation of antigravity muscle fibers to disuse atrophy

<i>Period</i>	<i>Obligations</i>	
08/01/77-11/15/81	FY82:	TOTAL: \$116,350
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Booth, F.	JSC/Smith, M.	51-Biological Sci

NAS 9-16478 Univ. of Texas-Hlth Science Ctr-Houston 4677
Biochemical adaptations of anti-gravity muscle fibers to disuse atrophy

<i>Period</i>	<i>Obligations</i>	
02/24/82-12/31/82	FY82: \$32,000	TOTAL: \$32,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Booth, F. W.	JSC/Cintron-trevino, N.	51-Biological Sci

NAS 9-16688 Univ. of Texas-Hlth Science Ctr-Houston 4678
Long term bedrest in the study of calcium dynamics

<i>Period</i>	<i>Obligations</i>	
09/28/82-06/15/83	FY82: \$95,000	TOTAL: \$95,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schneider, V. S.	JSC/Johnson, P.	56-Medical Sciences

NAG 9-5 Univ of Texas-Hlth Sci Ctr-San Antonio 4679
The effect of stress on human blood platelets

<i>Period</i>	<i>Obligations</i>	
03/01/80-06/30/83	FY82: \$50,000	TOTAL: \$154,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
George, J. N.	JSC/Leach, C. S.	56-Medical Sciences

NAS 9-16386 Univ of Texas-Hlth Sci Ctr-San Antonio 4680
Quantitation of renal prostaglandins

<i>Period</i>	<i>Obligations</i>	
04/27/81-07/01/83	FY82: \$35,000	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lifschitz, M.	JSC/Leach, C. S.	56-Medical Sciences

UTAH

NAG 2-145 Brigham Young University 4681
Pioneer 10 and 11 (Jupiter and Saturn) magnetometer experiments

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, D. E.	ARC/Fimmel, R. O.	19-Phys Sci, NEC

NAG 5-62 Brigham Young University 4682
Ultraviolet studies of the components of Cepheid variables

<i>Period</i>	<i>Obligations</i>	
06/01/80-09/30/82	FY82:	TOTAL: \$8,092
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McNamara, D. H.	GSFC/Boggess, A.	11-Astronomy
Feltz, K.		

NAS 2-7358 Brigham Young University 4683
Pioneer F/G data analysis of the solar terrestrial relations portion of the magnetic field experiment

<i>Period</i>	<i>Obligations</i>	
00/00/00-12/31/81	FY82:	TOTAL: \$96,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jones, D. E.	ARC/Fimmel, R. O.	13-Physics
	ARC/Dyer, J.	

NAS 5-26473 Brigham Young University 4684
Heat capacity mapping mission (HCMM) data continuing schematic design and scientific applications

<i>Period</i>	<i>Obligations</i>	
02/24/81-02/23/82	FY82:	TOTAL: \$26,730
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Miller, W.	GSFC/Gordon, F.	39-Env Sci, NEC

NAG 1-283 University of Utah 4685
Acoustic propagation in a thermally stratified atmosphere

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$41,100	TOTAL: \$41,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Van Moorhem, W. K.	LARC/Willshire, W. L., Jr.	13-Physics
	LARC/Zorumski, W. E.	

**NASA'S UNIVERSITY PROGRAM
UTAH (Continued)**

NAG 2-108	University of Utah	4686
Mechanisms of action of glucocorticosteroids and fluoride ion on the growing skeleton		
<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$83,000	TOTAL: \$178,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Jee, W. S.	ARC/Holton, E. M.	51-Biological Sci
Woodbury, D. M.		
NAG 3-27	University of Utah	4687
Carbon-13 NMR analysis of shale oils and shale oil derived jet fuels		
<i>Period</i>	<i>Obligations</i>	
03/01/80-02/26/83	FY82: \$92,807	TOTAL: \$255,854
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ursenbach, W. O.	LERC/Seng, G. T.	12-Chemistry
Pugmire, R. J.		
NAG 5-127	University of Utah	4688
Global scale diagnosis of satellite data		
<i>Period</i>	<i>Obligations</i>	
07/01/81-07/31/83	FY82: \$47,864	TOTAL: \$72,864
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Paegle, J.	GSFC/Kalnay, E.	31-Atmos Sci
NAG 5-164	University of Utah	4689
Study of tectonic activity in the basin and range province and the San Andres Fault system		
<i>Period</i>	<i>Obligations</i>	
04/15/81-07/14/83	FY82: \$25,000	TOTAL: \$55,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, R. B.	GSFC/Lowman, P. D., Jr.	32-Geological Sci
NAG 6-15	University of Utah	4690
Development work on meteorological data processing firmware		
<i>Period</i>	<i>Obligations</i>	
05/15/81-11/30/82	FY82: \$32,000	TOTAL: \$32,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Staffanson, F. L.	GSFC/Snyder, R. V.	19-Phys Sci, NEC
	WFC/West, W. W.	
NAGW 11	University of Utah	4691
Irregular satellites and Trojan asteroids study		
<i>Period</i>	<i>Obligations</i>	
11/01/79-07/01/81	FY82:	TOTAL: \$7,456
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shorthill, R. W.	HQ-EL/Brunk, W. E.	11-Astronomy
NAGW 82	University of Utah	4692
An experimental investigation of the angular scattering and backscattering behavior of the simulated clouds of the outer planets		
<i>Period</i>	<i>Obligations</i>	
06/01/80-09/30/82	FY82:	TOTAL: \$73,687
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sassen, K.	HQ-EL/Murphy, R. E.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	
NAGW 95	University of Utah	4693
Identifying environmental features for land management decisions		
<i>Period</i>	<i>Obligations</i>	
08/01/80-08/31/85	FY82: \$100,000	TOTAL: \$300,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ursenbach, W. O.	HQ-EL/Tuyahov, A. J.	39-Env Sci, NEC
Ridd, M. K.		
NAGW 260	University of Utah	4694
Support of Yosemite conference on origins of plasmas and electric fields in the magnetosphere		
<i>Period</i>	<i>Obligations</i>	
11/01/81-03/31/82	FY82: \$10,000	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sojka, J. J.	HQ-EZ/Lynch, J. T.	13-Physics
	HQ-EZ/Schmerling, E. R.	
NAS 5-25373	University of Utah	4695
Linear and nonlinear interactions of the large scale atmospheric waves		
<i>Period</i>	<i>Obligations</i>	
11/27/78-08/31/81	FY82:	TOTAL: \$84,929
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kao, S. K.	GSFC/Greaves, J. R.	31-Atmos Sci
	GSFC/Shulka, J.	
NCA 2-821001	University of Utah	4696
Light scattering by nonspherical particles		
<i>Period</i>	<i>Obligations</i>	
03/15/80-06/30/81	FY82:	TOTAL: \$18,187
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Liou, K.	ARC/Pollack, J. B.	31-Atmos Sci
Coleman, R. F.	ARC/Cuzzi, J. N.	
NGT 45-003-800	University of Utah	4697
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
08/01/81-05/31/83	FY82: \$11,300	TOTAL: \$23,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nielson, H. C.	HQ-LB/Carter, C. H.	61-Biol Aspects
NGT 45-003-801	University of Utah	4698
Graduate student researchers program		
<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$10,590	TOTAL: \$10,590
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCoy, R. M.	HQ-LB/Carter, C. H.	99-Multi-Discip
NSG 1534	University of Utah	4699
Fluid dynamics of crystallization from vapors		
<i>Period</i>	<i>Obligations</i>	
06/01/78-09/30/83	FY82: \$78,141	TOTAL: \$380,705
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Rosenberger, F. E.	LARC/Fripp, A. L.	47-Materials Engr
	LARC/Crouch, R. K.	

**NASA'S UNIVERSITY PROGRAM
UTAH (Continued)**

NSG 7226 **University of Utah** **4700**
Identifying environmental features for land management decisions

<i>Period</i>	<i>Obligations</i>	
08/01/76-07/31/82	FY82: TOTAL: \$500,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ridd, M. K.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

NAGW 105 **Utah State University** **4707**
A study of magnetospheric/ionospheric/atmospheric coupling via energetic heavy ions

<i>Period</i>	<i>Obligations</i>	
11/01/80-01/31/83	FY82: \$35,000 TOTAL: \$69,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Torr, M. R.	HQ-EZ/Benson, R. F.	19-Phys Sci, NEC

NSG 7516 **University of Utah** **4701**
Mechanistic studies of prebiotic chemistry

<i>Period</i>	<i>Obligations</i>	
10/01/78-09/30/82	FY82: TOTAL: \$108,900	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Guillory, W. A.	HQ-EB/Devincenzi, D. L.	12-Chemistry

NAGW 119 **Utah State University** **4708**
Innovative projects in electromagnetism

<i>Period</i>	<i>Obligations</i>	
11/15/80-12/14/82	FY82: \$110,515 TOTAL: \$151,465	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Torr, D. G.	HQ-EP/Taylor, T. C.	13-Physics
Edwards, W. F.	HQ-EP/Heninger, L. W.	

NAG 5-121 **Utah State University** **4702**
A study of atmosphere-ionosphere-magnetosphere coupling

<i>Period</i>	<i>Obligations</i>	
10/01/80-12/31/81	FY82: TOTAL: \$24,913	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Raitt, W. J.	GSFC/Corrigan, J. P.	11-Astronomy

NAGW 345 **Utah State University** **4709**
Definition studies into the reflight of the imaging spectrometric observatory for the studies of trace constituents in the middle atmosphere

<i>Period</i>	<i>Obligations</i>	
06/15/82-06/14/83	FY82: \$57,078 TOTAL: \$57,078	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Torr, D. G.	HQ-EE/Esenwein, G. F.	31-Atmos Sci
	HQ-EE/Watson, R. T.	

NAG 5-603 **Utah State University** **4703**
Experimental studies of turbulent electrostatic waves in equatorial spread F, the equatorial electrojet and in two active space plasma events

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$40,697 TOTAL: \$40,697	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Baker, K. D.	GSFC/Early, L. J.	13-Physics
	WFC/Pless, R. H.	

NAGW 354 **Utah State University** **4710**
Balloonborne stratosphere ultraviolet imagery equipment

<i>Period</i>	<i>Obligations</i>	
05/01/82-04/31/83	FY82: \$85,000 TOTAL: \$85,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Torr, M. R.	HQ-EE/Watson, R. T.	31-Atmos Sci
	HQ-EE/Hilsenrath, E.	

NAG 5-607 **Utah State University** **4704**
Sounding rocket experiments using tethered payloads

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$59,522 TOTAL: \$59,522	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Raitt, W. J.	GSFC/Early, L. J.	13-Physics
Williamson, P. R.	GSFC/Pless, R. H.	
Parish, J. L.		

NAS 5-24455 **Utah State University** **4711**
Investigations of vehicle charging and potential (VCAP) on orbital flight test four experiment

<i>Period</i>	<i>Obligations</i>	
03/01/78-04/30/83	FY82: \$232,971 TOTAL: \$1,604,700	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Banks, P. M.	GSFC/Eiband, A. M.	13-Physics
Raitt, J.		

NAG 8-17 **Utah State University** **4705**
Thermal ion dynamics experiment (TIDE): An investigation of low energy (0-100ev) ions on the PPL and EML spacecraft of the OPEN mission

<i>Period</i>	<i>Obligations</i>	
08/30/82-11/14/83	FY82: \$2,462 TOTAL: \$2,462	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Raitt, W. J.	MSFC/Chappell, C. R.	11-Astronomy

NAS 5-26171 **Utah State University** **4712**
Study of the imaging stratospheric ultraviolet spectrometer for the upper atmosphere research satellite (UARS)

<i>Period</i>	<i>Obligations</i>	
09/24/80-12/31/81	FY82: TOTAL: \$331,916	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Torr, D. G.	GSFC/Browne, W. H., Jr.	31-Atmos Sci

NAGW 77 **Utah State University** **4706**
The flow of plasma in the solar terrestrial environment

<i>Period</i>	<i>Obligations</i>	
07/01/80-06/30/83	FY82: \$168,400 TOTAL: \$472,400	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schunk, R. W.	HQ-EE/Butler, D. M.	13-Physics

NAS 5-26849 **Utah State University** **4713**
Conduct a definitization phase of the auroral images of magnetospheric energy for the OPEN project

<i>Period</i>	<i>Obligations</i>	
05/24/82-08/24/83	FY82: \$86,000 TOTAL: \$86,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Torr, M.	GSFC/O'brien, J.	11-Astronomy

NASA'S UNIVERSITY PROGRAM

UTAH (Continued)

NAS 8-32636 **Utah State University** **4714**
 Large spacecraft interaction with ambient environment at
 geosynchronous Earth orbit charging
Period *Obligations*
 09/20/77-09/30/81 FY82: TOTAL: \$116,562
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Raitt, W. J. MSFC/Chappell, C. R. 31-Atmos Sci

NSG 6027 **Utah State University** **4721**
 An investigation of current collection processes in the ionospheric
 plasma at high potential
Period *Obligations*
 03/01/79-08/31/82 FY82: TOTAL: \$186,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Williamson, P. R. GSFC/Early, L. J. 19-Phys Sci, NEC

NAS 8-33992 **Utah State University** **4715**
 Development, integration, mission support and data analysis of
 the imaging spectrometric observatory experiment for Spacelab
 mission I
Period *Obligations*
 07/25/80-09/30/83 FY82: \$380,000 TOTAL: \$819,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Torr, M. R. MSFC/Jones, C. T. 31-Atmos Sci
 MSFC/Ise, R.

NSG 7038 **Utah State University** **4722**
 The diagenesis of geologically important organic matter and
 amino acids under simulated natural conditions
Period *Obligations*
 06/01/74-06/30/83 FY82: \$65,532 TOTAL: \$520,319
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, G. G. HQ-EB/Devincenzi, D. L. 32-Geological Sci

NAS 8-34003 **Utah State University** **4716**
 Research study: Interactive experiments study
Period *Obligations*
 08/01/80-01/31/82 FY82: TOTAL: \$72,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Banks, P. M. MSFC/Chappell, C. R. 13-Physics
 MSFC/Fields, S. A.

NSG 7289 **Utah State University** **4723**
 Study of the dynamics of atmosphere-ionosphere magnetosphere
 interactions
Period *Obligations*
 07/01/76-06/30/81 FY82: TOTAL: \$490,686
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Banks, P. M. HQ-EZ/Mayr, H. G. 31-Atmos Sci
 HQ-EZ/Schmerling, E.

NAS 9-14871 **Utah State University** **4717**
 Higher plant response to elevated ultraviolet irradiance
Period *Obligations*
 10/08/75-12/31/81 FY82: TOTAL: \$519,841
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Caldwell, M. M. JSC/Nachtwey, D. S. 54-Env Biology

NSG 7567 **Utah State University** **4724**
 An examination of the clinostat problem using leafy plants
Period *Obligations*
 07/01/71-11/30/83 FY82: \$50,000 TOTAL: \$136,442
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Salisbury, F. B. HQ-EB/Haistead, T. W. 51-Biological Sci

NCC 2-139 **Utah State University** **4718**
 Studies on maximum yield of wheat and other small grains in
 controlled environments
Period *Obligations*
 05/01/81-04/30/83 FY82: \$65,000 TOTAL: \$143,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Salisbury, F. B. ARC/Zill, L. P. 55-Agriculture Sci

NAGW 19 **Weber State College** **4725**
 Mass flow velocity distributions in the solar chromosphere
Period *Obligations*
 01/01/80-09/30/81 FY82: \$11,848 TOTAL: \$31,369
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tripp, D. A. HQ-EZ/Chipman, E. 13-Physics

NSG 5215 **Utah State University** **4719**
 Studies of high latitude ion dynamics
Period *Obligations*
 10/01/77-04/30/82 FY82: TOTAL: \$67,354
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 St Maurice, J. P. GSFC/Spencer, N. W. 13-Physics
 Banks, P. M.
 Sojka, J.

NAS 8-33113 **Weber State College** **4726**
 Spectrum synthesis of extreme ultraviolet solar flare profiles
Period *Obligations*
 01/24/79-12/31/80 FY82: TOTAL: \$17,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tripp, D. A. MSFC/Deloach, A. C. 31-Atmos Sci
 MSFC/Snoddy, W. C.

NSG 5216 **Utah State University** **4720**
 Investigation of electric fields in the vicinity of plasmopause
 mid-latitude trough and polar cleft
Period *Obligations*
 10/01/77-12/31/82 FY82: TOTAL: \$63,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Foster, J. C. GSFC/Spencer, N. W. 13-Physics
 Doupnik, J. R.

VERMONT

NAG 8-389 **Middlebury College** **4727**
 Investigations of the Puppis A X-ray emission line spectrum
Period *Obligations*
 12/08/80-12/31/83 FY82: \$28,684 TOTAL: \$47,023
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Winkler, P. F., Jr. MSFC/Stone, J. F. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
VERMONT (Continued)**

NAGW 54 Middlebury College 4728
Structure of field rotating disturbances in warm plasma
Period *Obligations*
03/01/80-02/28/83 FY82: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wolfson, L. T. HQ-EE/Wiskerchen, M. J. 19-Phys Sci, NEC

NSG 7453 Univ of Vermont & St Agricultural Col. 4729
Development of a remote sensing applications program in Vermont
Period *Obligations*
06/01/78-05/31/85 FY82: \$125,000 TOTAL: \$675,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Whitmore, R. A. HQ-EL/Tuyahov, A. J. 32-Geological Sci

VIRGINIA

NAG 1-268 Christopher Newport College 4730
Bacterial electrochemical asymmetry potential (BEAP)
Period *Obligations*
05/11/82-05/10/83 FY82: \$13,000 TOTAL: \$13,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sacks, L. J. LARC/Wilkins, J. R. 12-Chemistry

NSG 1514 Christopher Newport College 4731
An investigation of semiconductor electrodes
Period *Obligations*
09/01/78-12/31/82 FY82: \$45,000 TOTAL: \$134,737
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buoncristiani, A. M. LARC/Byvik, C. E. 13-Physics
Smith, B. T. LARC/Conway, E. J.

NSG 1614 Christopher Newport College 4732
Theoretical study of radiation effects in composite materials for space use
Period *Obligations*
07/01/79-11/30/82 FY82: \$39,000 TOTAL: \$140,475
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chang, C. K. LARC/Wilson, J. W. 19-Phys Sci, NEC
LARC/Conway, E. J.

NAG 1-33 College of William And Mary 4733
Silicon superlattices: Theory and application to semiconductor devices
Period *Obligations*
01/16/80-07/15/81 FY82: TOTAL: \$20,675
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moriarty, J. A. LARC/Stermer, R. L. 13-Physics
LARC/Hayes, P. J.

NAG 1-62 College of William And Mary 4734
Definition of the operational semantics of ADA
Period *Obligations*
05/01/80-08/31/81 FY82: TOTAL: \$23,608
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feyock, S. LARC/Harris, J. L. 22-Computer Science

NAG 1-109 College of William And Mary 4735
Numerical methods for viscous flows
Period *Obligations*
11/01/80-12/31/82 FY82: \$55,000 TOTAL: \$73,104
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zang, T. A. LARC/Anyiwo, J. C. 41-Aero Engr
LARC/Bushnell, D. M.

NAG 1-144 College of William And Mary 4736
Liquid crystallinity in semi-rigid polymers and in model compounds
Period *Obligations*
02/15/81-02/14/83 FY82: \$29,095 TOTAL: \$64,869
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Orwoll, R. A. LARC/St.Clair, T. L. 12-Chemistry

NAG 1-209 College of William And Mary 4737
Optimal attitude reorientation of space vehicles
Period *Obligations*
08/11/81-12/31/82 FY82: TOTAL: \$15,566
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rublein, G. T. LARC/Price, D. B. 42-Astro Engr

NAG 1-237 College of William And Mary 4738
Characterization of relationship of cure cycle processing properties
Period *Obligations*
12/01/81-11/30/82 FY82: \$61,891 TOTAL: \$61,891
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kranbuehl, D. E. LARC/Freeman, W. T., Jr. 12-Chemistry
LARC/Nelson, J. B.

NAG 3-232 College of William And Mary 4739
A high order language for a system of closely coupled processing elements
Period *Obligations*
12/15/81-12/13/83 FY82: \$112,547 TOTAL: \$112,547
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feyock, S. LERC/Arpasi, D. J. 22-Computer Science
Collins, W. R. LERC/Szuch, J. R.

NAS 1-15965 College of William And Mary 4740
Tire nonlinear model
Period *Obligations*
09/07/79-02/01/81 FY82: TOTAL: \$30,915
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Andersen, C. M. LARC/Tanner, J. A. 46-Mech Engr

NCC 1-3 College of William And Mary 4741
Atmos Spacelab science investigation
Period *Obligations*
05/01/79-09/30/82 FY82: TOTAL: \$78,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rinsland, C. P. LARC/Sullivan, E. M. 31-Atmos Sci
LARC/Russell, J. M., III

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NCC 1-16 **College of William And Mary** **4742**
Analysis of remote sensors for pollution
Period *Obligations*
08/01/79-12/31/82 **FY82:** **TOTAL: \$48,361**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rinsland, C. P. LARC/Sullivan, E. M. 31-Atmos Sci
LARC/Russell, J. M.

NSG 1626 **College of William And Mary** **4749**
Investigation of portability techniques for a large flight-oriented programming language
Period *Obligations*
06/01/79-06/30/83 **FY82:** **TOTAL: \$143,645**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feyock, S. LARC/Foudriat, E. C.
LARC/Will, R. W. 22-Computer Science

NCC 1-40 **College of William And Mary** **4743**
Tire nonlinear model
Period *Obligations*
04/16/80-12/15/82 **FY82: \$59,090** **TOTAL: \$186,935**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, C. M. LARC/Tanner, J. A. 46-Mech Engr

NSG 1653 **College of William And Mary** **4750**
Insulators for plumbum-stannum-tellurium metal-insulator-semiconductor devices
Period *Obligations*
10/01/79-12/31/80 **FY82:** **TOTAL: \$26,477**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sher, A. LARC/Fripp, A. L. 13-Physics
Tsuo, Y. N. LARC/Crouch, R. K.

NCC 1-43 **College of William And Mary** **4744**
Halogen occultation experiment (HALOE) science investigation
Period *Obligations*
08/01/80-12/31/82 **FY82: \$45,752** **TOTAL: \$74,352**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rinsland, C. P. LARC/Sullivan, E. M. 31-Atmos Sci
Benner, D. C. LARC/Russell, J. M.

NSG 7416 **College of William And Mary** **4751**
Research on turbulence in plasmas
Period *Obligations*
12/01/77-11/30/82 **FY82:** **TOTAL: \$155,900**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Montgomery, D. C. HQ-EZ/Mayr, H. G. 19-Phys Sci, NEC
HQ-EZ/Schmerling, E. R.

NCC 1-61 **College of William And Mary** **4745**
Advanced concepts in solar occultation remote sensing
Period *Obligations*
01/05/82-11/04/83 **FY82: \$77,814** **TOTAL: \$77,814**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rinsland, C. P. LARC/Seals, R. K. 31-Atmos Sci
LARC/Sullivan, E. M.

NAS 6-2964 **Eastern Shore Community College** **4752**
Provide a public information program
Period *Obligations*
01/01/79-12/31/81 **FY82:** **TOTAL: \$44,426**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Layman, P. GSFC/Milliner, J. B. 99-Multi-Discip
WFC/Gladding, M. T.

NSG 1095 **College of William And Mary** **4746**
Molecular weight-property relationships of high performance polymers used for adhesives and composites
Period *Obligations*
09/01/74-02/28/82 **FY82:** **TOTAL: \$110,482**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kranbuehl, D. E. LARC/Johnston, N. J. 12-Chemistry
LARC/Burks, H. D.

NAG 5-124 **George Mason University** **4753**
Data analysis of soft X-ray observations with High Energy Astronomical Observatory-2 of late type stars
Period *Obligations*
10/01/80-09/30/81 **FY82:** **TOTAL: \$9,966**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kafatos, M. GSFC/Michalitsianos, A. G.
GSFC/Hobbs, R. W. 11-Astronomy

NSG 1435 **College of William And Mary** **4747**
Development of a multi-target compiler writing system
Period *Obligations*
07/11/77-12/31/82 **FY82: \$14,135** **TOTAL: \$399,527**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Collins, W. R. LARC/Senn, E. H. 21-Mathematics
Donegan, M. K. LARC/Voigt, S. J.
Noonan, R. E.

NAG 5-148 **George Mason University** **4754**
Theory of decentralized control of Markovian decision models
Period *Obligations*
03/01/81-05/31/82 **FY82:** **TOTAL: \$12,055**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heckel, R. W. GSFC/Larsen, R. L. 29-Math/Cmputer, NEC
GSFC/Ondrus, P. J.

NSG 1625 **College of William And Mary** **4748**
Methodologies for optimizing maintenance models for advanced avionics control systems
Period *Obligations*
09/01/79-08/31/83 **FY82: \$20,000** **TOTAL: \$112,622**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schaefer, M. K. LARC/Finelli, G. B. 49-Engr, NEC

NAS 5-26952 **George Mason University** **4755**
Human factors analysis support for needs program
Period *Obligations*
02/18/82-02/04/83 **FY82: \$97,740** **TOTAL: \$97,740**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mitchell, C. M. GSFC/Moe, K. L. 12-Chemistry
Bocast, A. K. GSFC/Truskowski, W. F.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAS 5-27255 **George Mason University** **4756**
Analytical and simulation support of the mission planning process for the multisatellite operations

<i>Period</i>	<i>Obligations</i>	
06/17/82-07/16/83	FY82: \$32,215	TOTAL: \$32,215
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Greenland, A. Mitchell, C. Koslosky, J. T.	GSFC/Ondrus, P. J.	29-Math/Cmputer,NEC

NAS 1-16455 **Hampton Institute** **4763**
Summer research fellowship program

<i>Period</i>	<i>Obligations</i>	
11/07/80-01/21/82	FY82:	TOTAL: \$63,949
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Darden, G. C.	LARC/Erickson, W. D. LARC/Foughner, J. T.	99-Multi-Discip

NCA 5-92 **George Mason University** **4757**
Study of forbidden line emission from abundant heavy elements in hot nebulae

<i>Period</i>	<i>Obligations</i>	
08/01/78-08/15/82	FY82:	TOTAL: \$4,656
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kafatos, M.	GSFC/Hobbs, R. W.	11-Astronomy

NCC 1-7 **Hampton Institute** **4764**
Complex vector operations on star computer with applications to linear algebra problems linear systems of linear equations

<i>Period</i>	<i>Obligations</i>	
04/15/79-12/15/82	FY82:	TOTAL: \$83,956
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Shan, S. N.	LARC/Haigler, G. W. LARC/Lambiotte, J. J.	21-Mathematics

NSG 5371 **George Mason University** **4758**
Observation of circumstellar shells around cool giants and supergiants

<i>Period</i>	<i>Obligations</i>	
06/01/79-09/30/82	FY82:	TOTAL: \$27,983
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kafatos, M.	GSFC/Bogges, A.	11-Astronomy

NCC 1-11 **Hampton Institute** **4765**
Radiative transfer model for remote sensing of laser-induced fluorescence of phytoplankton in non-homogeneous turbid waters

<i>Period</i>	<i>Obligations</i>	
05/01/79-09/30/82	FY82: \$17,916	TOTAL: \$67,328
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Venable, D. D.	LARC/Poole, L. R.	39-Env Sci, NEC

NAG 1-69 **Hampton Institute** **4759**
Generation of cost and fuel optimal vertical flight profiles

<i>Period</i>	<i>Obligations</i>	
06/01/80-04/30/82	FY82:	TOTAL: \$22,798
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wiggs, J. F.	LARC/Samms, K. H. LARC/Morello, S. A.	41-Aero Engr

NGT 47-020-800 **Hampton Institute** **4766**
Summer faculty fellowship program in research

<i>Period</i>	<i>Obligations</i>	
01/01/82-03/31/83	FY82: \$277,832	TOTAL: \$277,832
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Spencer, J. H.	HQ-LB/Carter, C. H.	49-Engr, NEC

NAG 1-87 **Hampton Institute** **4760**
Local effects of partly cloudy skies on solar and emitted radiation

<i>Period</i>	<i>Obligations</i>	
08/01/80-05/31/83	FY82: \$138,823	TOTAL: \$354,012
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Venable, D. D. Whitney, D. A.	LARC/Whitlock, C. H. LARC/Suttles, J. T.	31-Atmos Sci

NGT 47-020-801 **Hampton Institute** **4767**
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$10,500	TOTAL: \$10,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Venable, D. D.	HQ-LB/Carter, C. H.	13-Physics

NAG 1-122 **Hampton Institute** **4761**
Absorption of humic acids and trace metals in natural waters

<i>Period</i>	<i>Obligations</i>	
12/01/80-11/30/82	FY82:	TOTAL: \$58,129
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Leung, W. H.	LARC/Harris, R. C. LARC/Whitlock, C. H.	39-Env Sci, NEC

NSG 1595 **Hampton Institute** **4768**
Studies of new media for radiation induced lasers

<i>Period</i>	<i>Obligations</i>	
02/01/79-12/31/83	FY82: \$42,000	TOTAL: \$164,143
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Han, K. S.	LARC/Jalufka, N. W. LARC/Conway, E. J.	13-Physics

NAS 1-16429 **Hampton Institute** **4762**
Conversion of flight records

<i>Period</i>	<i>Obligations</i>	
10/01/80-12/31/81	FY82:	TOTAL: \$30,208
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Williams, E.	LARC/Jewel, J. W. LARC/Hall, A. W.	41-Aero Engr

NAS 1-16361 **Norfolk State University** **4769**
Documentation and research support in the use of Macsyma

<i>Period</i>	<i>Obligations</i>	
08/12/80-08/11/81	FY82:	TOTAL: \$17,082
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deloatch, S. J.	LARC/Shoosmith, J. N.	29-Math/Cmputer,NEC

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAS 1-16921 Norfolk State University 4770
Development of computer aided algebraic systems at Langley Research Center
Period *Obligations*
01/18/82-07/17/83 FY82: \$22,365 TOTAL: \$22,365
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Deloatch, S. J. LARC/Shoosmith, J. N.
29-Math/Cmputer,NEC

NAG 1-66 Old Dominion University 4777
Energy environment study
Period *Obligations*
05/16/80-03/15/81 FY82: TOTAL: \$22,294
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strangways, R. S. LARC/Batten, B. G. 72-Economics
Qureshi, U. A.

NAG 1-1 Old Dominion University 4771
Atmospheric sensors: In situ and remote sensing technique comparisons
Period *Obligations*
10/25/79-05/15/83 FY82: \$49,405 TOTAL: \$171,117
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Copeland, G. E. LARC/Lebel, P. J. 13-Physics
Harward, C. N. LARC/Bair, C. H.

NAG 1-96 Old Dominion University 4778
Boundary layer receptivity
Period *Obligations*
08/01/80-09/30/81 FY82: TOTAL: \$49,585
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grosch, C. E. LARC/Bushnell, D. M. 41-Aero Engr
LARC/Hefner, J. N.

NAG 1-15 Old Dominion University 4772
Propagation of sound through the Earth's atmosphere
Period *Obligations*
01/01/80-06/30/81 FY82: TOTAL: \$59,245
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zuckerwar, A. J. LARC/Holmes, H. K. 13-Physics
Becher, J.

NAG 1-102 Old Dominion University 4779
Control of precision-pointed structures mounted on flexible space platforms
Period *Obligations*
02/15/81-02/14/83 FY82: \$63,328 TOTAL: \$118,317
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Hamer, H. A. 49-Engr, NEC
Joshi, S. M.

NAG 1-21 Old Dominion University 4773
Radiative transfer models for the Earth radiation budget studies
Period *Obligations*
01/01/80-01/31/83 FY82: \$9,818 TOTAL: \$102,133
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tiwari, S. N. LARC/Suttles, J. T. 31-Atmos Sci
Subramaniam, S. V. LARC/Raper, J. L.

NAG 1-111 Old Dominion University 4780
Investigation of a pattern classification approach for wind streamline direction ambiguity removal
Period *Obligations*
11/13/80-12/31/82 FY82: TOTAL: \$35,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stoughton, J. W. LARC/Schroeder, L. C. 33-Oceanography
LARC/Jones, W. L.

NAG 1-25 Old Dominion University 4774
Spectral multigrid methods for the two dimensional compressible Navier-Stokes equations with nonperiodic boundary conditions
Period *Obligations*
06/01/80-08/31/81 FY82: TOTAL: \$38,695
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lakin, W. D. LARC/Harris, J. E. 21-Mathematics
Lustman, L. LARC/Bushnell, D. M.

NAG 1-120 Old Dominion University 4781
Analysis of aerothermo-dynamic environment of an aerocapture vehicle
Period *Obligations*
11/04/80-02/03/82 FY82: TOTAL: \$23,534
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tiwari, S. N. LARC/Moss, J. N. 41-Aero Engr

NAG 1-47 Old Dominion University 4775
A retargetable path Pascal system for implementation on concurrent programs on 16-bit microcomputers
Period *Obligations*
03/05/80-08/31/81 FY82: TOTAL: \$48,805
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knapper, R. J. LARC/Foudriat, E. C. 22-Computer Science
LARC/Will, R. W.

NAG 1-121 Old Dominion University 4782
Study of vorticular structure in turbulent boundary layers
Period *Obligations*
11/04/80-11/30/82 FY82: TOTAL: \$65,911
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ash, R. L. LARC/Anyiwo, J. C. 41-Aero Engr
LARC/Bushnell, D. M.

NAG 1-63 Old Dominion University 4776
Development of computer models for the prediction of large distorted reflector antenna characteristics
Period *Obligations*
05/16/80-07/15/82 FY82: \$4,963 TOTAL: \$59,809
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moskowitz, S. M. LARC/Bailey, M. C. 45-Elec Engr

NAG 1-142 Old Dominion University 4783
Propagation of sound through the Earth's atmosphere
Period *Obligations*
01/01/81-07/31/82 FY82: TOTAL: \$41,022
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becher, J. E. LARC/Holmes, H. K. 13-Physics
Merideth, R.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 1-148 **Old Dominion University** **4784**
Modeling of thin-film gallium arsenide (GaAs) growth
Period *Obligations*
02/01/81-08/15/83 FY82: \$54,895 TOTAL: \$74,614
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heinbockel, J. H. LARC/Outlaw, R. A. 47-Materials Engr
LARC/Conway, E. J.

NAG 1-223 **Old Dominion University** **4791**
Fitting multidimensional splines using statistical variable selection techniques
Period *Obligations*
10/19/81-10/18/82 FY82: \$31,965 TOTAL: \$31,965
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, P. L. LARC/Schiess, J. R. 21-Mathematics
LARC/Shoosmith, J. N.

NAG 1-175 **Old Dominion University** **4785**
Higher modes of Orr-Sommerfeld problem for the stability of boundary-layer flows
Period *Obligations*
09/01/81-08/31/82 FY82: TOTAL: \$32,923
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lakin, W. D. LARC/Dagenhart, J. R. 21-Mathematics
Grosch, C. E. LARC/Newman, P. A.

NAG 1-228 **Old Dominion University** **4792**
Laminar flow transition a large-eddy simulation approach
Period *Obligations*
10/19/81-10/18/82 FY82: \$57,634 TOTAL: \$57,634
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Harvey, W. D. 41-Aero Engr
Birtngen, S. H.

NAG 1-189 **Old Dominion University** **4786**
Relationship among sea surface roughness variations, oceanographic analyses and airborne remote sensing analyses
Period *Obligations*
05/16/81-10/31/81 FY82: TOTAL: \$19,738
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Oertel, G. F. LARC/Croswell, W. F. 33-Oceanography
LARC/Johnson, J. W.

NAG 1-234 **Old Dominion University** **4793**
Propagation of sound through the Earth's atmosphere
Period *Obligations*
01/01/82-12/31/82 FY82: \$44,995 TOTAL: \$44,995
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becker, J. LARC/Holmes, H. K. 13-Physics
Meredith, R.

NAG 1-191 **Old Dominion University** **4787**
Feasibility study of deformation modes and transient impact distribution of deforming composite materials using viscoplasticity method
Period *Obligations*
05/16/81-08/15/81 FY82: TOTAL: \$8,815
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dwivedi, S. N. LARC/Illeg, W. 47-Materials Engr
LARC/Kennedy, J. M.

NAG 1-257 **Old Dominion University** **4794**
Fundamental studies of heat load and thermal structural analyses of large space structures
Period *Obligations*
05/16/82-05/15/83 FY82: \$31,006 TOTAL: \$31,006
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thornton, E. A. LARC/Garrett, L. B. 46-Mech Engr
Dechaumphai, P. LARC/Wright, R. L.

NAG 1-196 **Old Dominion University** **4788**
Low-velocity impact behavior of composites
Period *Obligations*
09/15/81-09/14/83 FY82: \$60,000 TOTAL: \$107,692
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Illeg, W. 47-Materials Engr
Lal, K. M. LARC/Davidson, J. R.

NAG 1-266 **Old Dominion University** **4795**
Calibration of continuous measurement of carbon monoxide sensors
Period *Obligations*
04/01/82-09/30/82 FY82: \$16,774 TOTAL: \$16,774
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kindle, E. C. LARC/Harriss, R. C. 31-Atmos Sci
LARC/Mugler, J.

NAG 1-197 **Old Dominion University** **4789**
Burgers approximation for two-dimensional flow past an ellipse
Period *Obligations*
05/26/81-08/31/82 FY82: TOTAL: \$23,328
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dorrepaal, J. M. LARC/Wornom, S. F. 21-Mathematics
LARC/South, J. C., Jr.

NAG 1-294 **Old Dominion University** **4796**
Application of stability theory to laminar flow control
Period *Obligations*
07/21/82-08/20/82 FY82: \$5,825 TOTAL: \$5,825
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Harvey, W. D. 41-Aero Engr
El-hady, N. M.

NAG 1-219 **Old Dominion University** **4790**
Toughened composite material micromechanics
Period *Obligations*
01/01/82-12/31/82 FY82: \$39,433 TOTAL: \$39,433
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Illeg, W. 19-Phys Sci, NEC
Shivakumar, K. N. LARC/Poe., C. C., Jr.

NAG 1-297 **Old Dominion University** **4797**
Stability of boundary layer profiles on flat plates and the corner boundary layer problem
Period *Obligations*
09/01/82-08/31/83 FY82: \$35,451 TOTAL: \$35,451
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lakin, W. D. LARC/Dagenhart, J. R. 21-Mathematics

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NCC 1-60 **Old Dominion University** **4812**
Aerothermal structural concepts study
Period *Obligations*
12/08/81-12/07/82 **FY82: \$21,054** **TOTAL: \$21,054**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Prabhakaran, R. LARC/Davis, R. C. 41-Aero Engr
LARC/Cooper, P. A.

NSG 1167 **Old Dominion University** **4819**
The structural behavior of advanced composite materials
Period *Obligations*
06/01/75-09/30/82 **FY82:** **TOTAL: \$135,490**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thornton, E. A. LARC/Dixon, S. C. 41-Aero Engr
Fallon, D. J.

NCC 1-65 **Old Dominion University** **4813**
Investigation of aircraft wake vortex attenuation for various flight conditions
Period *Obligations*
02/02/82-09/16/82 **FY82: \$15,296** **TOTAL: \$15,296**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tiwari, S. N. LARC/Liu, C. H. 41-Aero Engr
LARC/Greene, G. C.

NSG 1177 **Old Dominion University** **4820**
Experimental and analytical studies in fluidics
Period *Obligations*
05/01/75-02/28/83 **FY82:** **TOTAL: \$122,953**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Hellbaum, R. F. 45-Elec Engr
LARC/Garner, H. D.

NCC 1-68 **Old Dominion University** **4814**
Numerical solution of axisymmetric flow with arbitrary wall geometry
Period *Obligations*
06/01/82-09/30/82 **FY82: \$5,347** **TOTAL: \$5,347**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tiwari, S. N. LARC/Smith, R. E. 41-Aero Engr
LARC/Shoosmith, J. N.

NSG 1271 **Old Dominion University** **4821**
Space Shuttle experiments studies
Period *Obligations*
03/01/76-02/28/83 **FY82: \$190,531** **TOTAL: \$1,107,354**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brock, F. J. LARC/Melfi, L. T., Jr. 13-Physics
Hueser, J. E. LERC/Jones, J. J.

NGR 47-003-052 **Old Dominion University** **4815**
Graduate research program in aeronautics and air transportation
Period *Obligations*
05/12/71-08/31/84 **FY82: \$50,000** **TOTAL: \$783,922**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roberts, A. S. LARC/Tolson, R. H. 41-Aero Engr
LARC/Prior, E. J.

NSG 1321 **Old Dominion University** **4822**
Concepts for structurally compatible thermal finite elements
Period *Obligations*
09/01/76-12/31/82 **FY82: \$67,123** **TOTAL: \$253,651**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thornton, E. A. LARC/Wieting, A. R. 49-Engr, NEC

NGT 47-003-029 **Old Dominion University** **4816**
Summer faculty fellowship program in research
Period *Obligations*
11/14/69-12/31/82 **FY82:** **TOTAL: \$1,350,019**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. HQ-LB/Carter, C. H. 49-Engr, NEC

NSG 1357 **Old Dominion University** **4823**
Implementation of advanced Trefftz plane drag optimization technique in vortex lattice wing design program
Period *Obligations*
11/08/76-02/28/83 **FY82: \$24,397** **TOTAL: \$118,982**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kuhiman, J. M. LARC/Frink, N. T. 41-Aero Engr

NGT 47-003-800 **Old Dominion University** **4817**
Graduate student researchers program
Period *Obligations*
07/01/81-06/30/83 **FY82: \$11,917** **TOTAL: \$22,917**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coates, G. D. HQ-LB/Carter, C. H. 69-Psych, NEC

NSG 1379 **Old Dominion University** **4824**
Feasibility study of a microprocessor based oculometer system
Period *Obligations*
01/01/77-12/31/80 **FY82:** **TOTAL: \$222,418**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Varanasi, M. R. LARC/Gainer, P. A. 45-Elec Engr
LARC/Waller, M. C.

NGT 47-003-801 **Old Dominion University** **4818**
Graduate student researchers program
Period *Obligations*
09/01/82-08/31/83 **FY82: \$11,000** **TOTAL: \$11,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coates, G. D. HQ-LB/Carter, C. H. 62-Social Aspects

NSG 1393 **Old Dominion University** **4825**
Computational solution of atmospheric chemistry problems
Period *Obligations*
06/01/77-08/15/83 **FY82: \$58,912** **TOTAL: \$202,956**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ake, R. L. LARC/Phillips, D. H. 12-Chemistry
Jafri, J. A. LARC/Rogowski, R. S.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NSG 1480 Old Dominion University 4826
Comparative study of flare control laws
Period *Obligations*
12/15/77-12/31/81 FY82: TOTAL: \$110,921
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tcheng, P. LARC/Creedon, J. F. 41-Aero Engr
Nadkarni, A. A. LARC/Ostroff, A. J.

NSG 1618 Old Dominion University 4833
Free stream disturbances, continuous eigenfunction boundary layer in stability and transition
Period *Obligations*
05/16/79-09/15/80 FY82: TOTAL: \$24,315
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grosch, C. E. LARC/Bushnell, D. M. 41-Aero Engr
LARC/Hefner, J. N.

NSG 1503 Old Dominion University 4827
Cryogenic transonic tunnel modeling and flow control
Period *Obligations*
03/15/78-03/14/81 FY82: TOTAL: \$107,501
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Kilgore, R. A. 41-Aero Engr
Balakrishna, S. LARC/Adcock, J. B.

NSG 1634 Old Dominion University 4834
Investigation of the effect of standing pressure waves on laminated transitional boundary layer flow
Period *Obligations*
09/01/79-08/31/80 FY82: TOTAL: \$18,424
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ash, R. L. LARC/Hefner, J. N. 41-Aero Engr
LARC/Bushnell, D. M.

NSG 1517 Old Dominion University 4828
A numerical investigation of viscous slot flow
Period *Obligations*
04/15/78-11/30/81 FY82: TOTAL: \$85,678
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cooke, C. H. LARC/Dwoyer, D. L. 41-Aero Engr
LARC/South, J. C.

NSG 1645 Old Dominion University 4835
Application of stability theory to laminar flow control
Period *Obligations*
09/01/79-08/31/81 FY82: TOTAL: \$98,037
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. I. LARC/Harvey, W. D. 41-Aero Engr
Elhady, N. M.

NSG 1560 Old Dominion University 4829
Development of a nonlinear vortex method
Period *Obligations*
09/01/78-09/30/82 FY82: \$33,444 TOTAL: \$124,671
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kandil, O. A. LARC/Yates, E. C., Jr. 41-Aero Engr

NSG 1649 Old Dominion University 4836
Dynamic identification for control of large space structures
Period *Obligations*
10/01/79-10/31/82 FY82: \$28,387 TOTAL: \$98,566
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ibrahim, S. R. LARC/Pappa, R. S. 46-Mech Engr
LARC/Hanks, B. R.

NSG 1561 Old Dominion University 4830
Investigation of aerodynamic characteristics of wings having vortex flow using different numerical codes
Period *Obligations*
09/01/78-12/31/82 FY82: \$38,721 TOTAL: \$131,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reddy, C. S. LARC/Luckring, J. M. 41-Aero Engr
LARC/Campbell, J. F.

NSG 1650 Old Dominion University 4837
Design of multi-variable feedback control systems via spectral assignment
Period *Obligations*
09/01/79-10/15/82 FY82: \$30,167 TOTAL: \$135,088
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mielke, R. R. LARC/Jones, R. L. 41-Aero Engr
Tung, L. J. LARC/Oehman, W. I.

NSG 1563 Old Dominion University 4831
Scale models for the improvement of flow patterns of a low speed tunnel
Period *Obligations*
09/15/78-08/31/81 FY82: TOTAL: \$86,130
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barna, P. S. LARC/Margason, R. J. 41-Aero Engr
LARC/Sellers, W. L.

NSG 1655 Old Dominion University 4838
Airborne antenna pattern calculations
Period *Obligations*
11/01/79-10/31/82 FY82: \$21,040 TOTAL: \$62,614
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mielke, R. R. LARC/Gilreath, M. C. 45-Elec Engr

NSG 1568 Old Dominion University 4832
Theoretical study of solar pumped lasers
Period *Obligations*
12/15/78-10/31/82 FY82: \$36,481 TOTAL: \$116,561
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harries, W. L. LARC/Wilson, J. W. 13-Physics
LARC/Meador, W. E.

NSG 5289 Old Dominion University 4839
Radiation effects studies for the high resolution spectrograph
Period *Obligations*
07/10/78-05/09/83 FY82: TOTAL: \$176,796
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becher, J. GSFC/Fowler, W. B. 13-Physics
Kernell, R. L.

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NAG 1-43 University of Virginia 4840
The development of the minicomputer/global bus interface for the finite element machine

<i>Period</i>	<i>Obligations</i>	
03/01/80-05/31/83	FY82: \$22,231	TOTAL: \$55,576
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Aylor, J. H.	LARC/Peebles, S. W.	45-Elec Engr
	LARC/Storaasli, O. O.	

NAG 1-262 University of Virginia 4847
Investigation of the quantum efficiency of optical heterodyne detectors

<i>Period</i>	<i>Obligations</i>	
03/15/82-03/14/83	FY82: \$35,692	TOTAL: \$35,692
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Batchman, T. E.	LARC/Jobson, D. J.	45-Elec Engr
	LARC/Katzberg, S. J.	

NAG 1-46 University of Virginia 4841
Numerical algorithms for finite element computations on arrays of microprocessors

<i>Period</i>	<i>Obligations</i>	
03/01/80-09/30/83	FY82: \$63,779	TOTAL: \$108,535
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ortega, J. M.	LARC/Storaasli, O. O.	49-Engr, NEC
	LARC/Peebles, S. W.	

NAG 3-141 University of Virginia 4848
Modulation and coding in the small bit regime

<i>Period</i>	<i>Obligations</i>	
03/01/81-01/01/83	FY82:	TOTAL: \$99,217
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, S. G.	LERC/Miller, E. F.	45-Elec Engr
	LERC/Whyte, W. A.	

NAG 1-137 University of Virginia 4842
Large space structure damping design

<i>Period</i>	<i>Obligations</i>	
01/16/81-01/15/83	FY82: \$60,000	TOTAL: \$123,957
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pilkey, W. D.	LARC/Horner, G. C.	42-Astro Engr
Wang, B. P.		

NAG 3-180 University of Virginia 4849
Aerodynamic cross-coupling forces on centrifugal turbomachinery

<i>Period</i>	<i>Obligations</i>	
04/25/81-04/23/83	FY82: \$65,449	TOTAL: \$122,139
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Allaire, P. E.	LERC/Kascak, A. F.	46-Mech Engr
Sexton, M. R.	LERC/Fleming, D. P.	
Barrett, L. E.		

NAG 1-177 University of Virginia 4843
Investigations of semi-conductor clad optical waveguides

<i>Period</i>	<i>Obligations</i>	
05/01/81-06/30/83	FY82: \$55,866	TOTAL: \$102,869
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Batchman, T. E.	LARC/Stermer, R. L.	45-Elec Engr
	LARC/Segura, R.	

NAG 3-263 University of Virginia 4850
Design study of magnetic eddy-current vibration suppression dampers for application to cryogenic turbomachinery

<i>Period</i>	<i>Obligations</i>	
03/05/82-03/04/83	FY82: \$59,096	TOTAL: \$59,096
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Humphris, R. R.	LERC/Cunningham, R. E.	46-Mech Engr
Gunter, E. J.	LERC/Kiraly, L. J.	

NAG 1-233 University of Virginia 4844
Design of comprehensive approach to engineering of crucial software

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Pratt, T. W.	LARC/Lupton, A. O.	22-Computer Science

NAG 3-316 University of Virginia 4851
Gigabit per second digital communications: Theory in practice

<i>Period</i>	<i>Obligations</i>	
08/15/82-08/14/83	FY82: \$58,799	TOTAL: \$58,799
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, S. G.	LERC/Connolly, D. J.	45-Elec Engr
Oliver, Jr., J. D.		

NAG 1-242 University of Virginia 4845
Research in computer science

<i>Period</i>	<i>Obligations</i>	
12/01/81-11/30/82	FY82: \$80,000	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Ortega, J. M.	LARC/Shoosmith, J. N.	22-Computer Science
	LARC/Fulton, R. E.	

NAG 5-81 University of Virginia 4852
Star formation in blue compact dwarf galaxies

<i>Period</i>	<i>Obligations</i>	
06/01/80-11/30/82	FY82:	TOTAL: \$4,170
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Thuan, T. X.	GSFC/Kondo, Y.	11-Astronomy

NAG 1-260 University of Virginia 4846
Implementation and use of ADA on distributed systems with high reliability requirements

<i>Period</i>	<i>Obligations</i>	
03/05/82-12/04/82	FY82: \$31,000	TOTAL: \$31,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reynolds, P. F.	LARC/Senn, E. H.	22-Computer Science
	LARC/Voigt, S. J.	

NAG 5-102 University of Virginia 4853
Kinematic analysis of tropical cyclones using satellite wind measurements

<i>Period</i>	<i>Obligations</i>	
09/01/80-07/31/83	FY82: \$18,030	TOTAL: \$49,863
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Frank, W. M.	GSFC/Rodgers, E. B.	31-Atmos Sci
Rodgers, E. B.		

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NAG 1-106 **Va Polytechnic Inst & St Univ** **4896**
Poly (aryl ethers): Effect of polymer structure on radiation resistance
Period *Obligations*
11/01/80-10/31/81 FY82: TOTAL: \$36,808
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McGrath, J. E. LARC/Sykes, G. F. 47-Materials Engr

NAG 1-145 **Va Polytechnic Inst & St Univ** **4903**
Development and application of optimum sensitivity analysis of structures
Period *Obligations*
01/08/81-12/31/82 FY82: \$25,408 TOTAL: \$48,956
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hallauer, W. L. LARC/Sobieski, J. E. 41-Aero Engr

NAG 1-119 **Va Polytechnic Inst & St Univ** **4897**
Influence of small surface roughness on turbulent flow over solid and porous surface
Period *Obligations*
11/04/80-12/31/81 FY82: TOTAL: \$41,213
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schetz, J. A. LARC/Hefner, J. N. 41-Aero Engr
LARC/Bushnell, D. M.

NAG 1-146 **Va Polytechnic Inst & St Univ** **4904**
Unsteady boundary layer injection
Period *Obligations*
01/08/81-06/30/81 FY82: TOTAL: \$5,723
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tellonis, D. P. LARC/Bushnell, D. M. 41-Aero Engr
LARC/Hefner, J. W.

NAG 1-123 **Va Polytechnic Inst & St Univ** **4898**
Modeling of temperature and suspended sediment in the John H. Kerr Reservoir, Virginia/North Carolina
Period *Obligations*
12/01/80-11/30/82 FY82: TOTAL: \$70,334
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kuo, C. Y. LARC/Whitlock, C. H. 44-Civil Engr
LARC/Curfman, H. J.

NAG 1-156 **Va Polytechnic Inst & St Univ** **4905**
Measurement of unsteady pressures on compressor blades
Period *Obligations*
03/24/81-09/30/83 FY82: \$53,498 TOTAL: \$92,109
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'Brien, W. F., Jr. LARC/Chestnutt, D. 46-Mech Engr

NAG 1-127 **Va Polytechnic Inst & St Univ** **4899**
Investigation of adhesive/adherend and fiber matrix interactions
Period *Obligations*
02/01/81-07/31/82 FY82: TOTAL: \$31,078
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wightman, J. P. LARC/Progar, D. J. 12-Chemistry
LARC/Nelson, J.

NAG 1-168 **Va Polytechnic Inst & St Univ** **4906**
Structural optimization for improved damage tolerance
Period *Obligations*
09/01/81-10/15/82 FY82: \$61,000 TOTAL: \$65,978
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haftka, R. T. LARC/Starnes, J. H. 41-Aero Engr

NAG 1-128 **Va Polytechnic Inst & St Univ** **4900**
International union of theoretical and applied mechanics symposium on mechanics of composite
Period *Obligations*
01/01/81-12/31/82 FY82: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herakovich, C. T. LARC/Davis, J. G., Jr. 49-Engr, NEC
LARC/Tenney, D. R.

NAG 1-174 **Va Polytechnic Inst & St Univ** **4907**
Chip level simulation of fault tolerant computers
Period *Obligations*
06/01/81-05/31/83 FY82: \$58,955 TOTAL: \$142,870
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Armstrong, J. R. LARC/Migneault, G. E. 29-Math/Cmputer, NEC
LARC/Thomas, R. M., Jr.

NAG 1-132 **Va Polytechnic Inst & St Univ** **4901**
Lightning upset methodology research
Period *Obligations*
12/15/80-12/14/81 FY82: TOTAL: \$35,627
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tront, J. G. LARC/Pitts, F. L. 45-Elec Engr

NAG 1-188 **Va Polytechnic Inst & St Univ** **4908**
Remote sensing of water quality
Period *Obligations*
05/01/81-04/30/82 FY82: TOTAL: \$18,310
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Giles, H., Jr. LARC/Hypes, W. D. 39-Env Sci, NEC
Koeln, G. T. LARC/Whitlock, C. H.

NAG 1-139 **Va Polytechnic Inst & St Univ** **4902**
Quasi-Newton methods for nonlinear structural analysis and synthesis
Period *Obligations*
01/01/81-06/30/82 FY82: TOTAL: \$42,066
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kamat, M. P. LARC/Hayduk, R. J. 49-Engr, NEC
LARC/Thomson, R. G.

NAG 1-192 **Va Polytechnic Inst & St Univ** **4909**
Acousto-optical techniques in ultrasonic transducer calibration for materials inspection
Period *Obligations*
10/01/81-09/30/82 FY82: TOTAL: \$36,205
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Claus, R. O. LARC/Cantrell, J. H. 13-Physics
LARC/Heyman, J. S.

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NAG 1-193 **Va Polytechnic Inst & St Univ** **4910**
Measurement of displacement around holes in composite plates subjected to quasi-static compression

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/82	FY82: TOTAL: \$35,920	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Duke, J. C.	LARC/Starnes, J. H.	41-Aero Engr
Post, D.		

NAG 1-232 **Va Polytechnic Inst & St Univ** **4917**
Fatigue damage in notched composite laminates under tension-tension cyclic loads

<i>Period</i>	<i>Obligations</i>	
01/01/82-12/31/82	FY82: \$72,087 TOTAL: \$72,087	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Stinchcomb, W. W.	LARC/O'Brien, T. K.	41-Aero Engr
Reifsnider, K. L.	LARC/Whitcomb, J. D.	
Henneke, E. G.		

NAG 1-201 **Va Polytechnic Inst & St Univ** **4911**
Compression strength failure mechanisms in unidirectional composite laminates containing a hole

<i>Period</i>	<i>Obligations</i>	
06/15/81-06/30/83	FY82: TOTAL: \$26,271	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, E. R.	LARC/Starnes, J. H., Jr.	41-Aero Engr

NAG 1-246 **Va Polytechnic Inst & St Univ** **4918**
Micro-bore high pressure liquid chromatograph (HPLC) columns for direct coupling to mass spectrometry

<i>Period</i>	<i>Obligations</i>	
01/01/82-03/15/83	FY82: \$29,933 TOTAL: \$29,933	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McNair, H. M.	LARC/Young, P. R.	12-Chemistry

NAG 1-203 **Va Polytechnic Inst & St Univ** **4912**
Climb dash and climb-cruise real-time calculations

<i>Period</i>	<i>Obligations</i>	
07/01/81-06/30/83	FY82: \$55,566 TOTAL: \$105,534	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kelley, H. J.	LARC/Gracey, C.	41-Aero Engr
Cliff, E. M.	LARC/Price, D. B.	

NAG 1-248 **Va Polytechnic Inst & St Univ** **4919**
Surface analysis in composite bonding

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$28,243 TOTAL: \$28,243	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wightman, J. P.	LARC/Progar, D. J.	19-Phys Sci, NEC
	LARC/St.Clair, T. L.	

NAG 1-220 **Va Polytechnic Inst & St Univ** **4913**
Three-dimensional hypersonic viscous flows of finite-rate chemically reacting gases

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$84,637 TOTAL: \$84,637	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lewis, C. H.	LARC/Zoby, E. V.	41-Aero Engr

NAG 1-252 **Va Polytechnic Inst & St Univ** **4920**
The role of the surface oxide layer in titanium bonding

<i>Period</i>	<i>Obligations</i>	
03/01/82-02/28/83	FY82: \$30,245 TOTAL: \$30,245	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wightman, J. P.	LARC/Progar, D. J.	19-Phys Sci, NEC
	LARC/St. Clair, T. L.	

NAG 1-224 **Va Polytechnic Inst & St Univ** **4914**
Automated sizing of aerospace structures under multiple constraints

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$49,660 TOTAL: \$49,660	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haftka, R. T.	LARC/Adelman, H. M.	41-Aero Engr

NAG 1-263 **Va Polytechnic Inst & St Univ** **4921**
Analysis and acoustooptical measurements of bulk and surface acoustic fields

<i>Period</i>	<i>Obligations</i>	
10/01/82-09/30/83	FY82: \$36,211 TOTAL: \$36,211	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Claus, R. O.	LARC/Cantrell, J. H., Jr.	13-Physics
	LARC/Heyman, J. S.	

NAG 1-225 **Va Polytechnic Inst & St Univ** **4915**
Identification and control of a beam in space

<i>Period</i>	<i>Obligations</i>	
11/01/81-12/31/82	FY82: \$34,958 TOTAL: \$34,958	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Meirovitch, L.	LARC/Williams, J. P.	42-Astro Engr

NAG 1-264 **Va Polytechnic Inst & St Univ** **4922**
Fracture testing of thick laminates of graphite epoxy composites

<i>Period</i>	<i>Obligations</i>	
03/29/82-03/31/83	FY82: \$46,006 TOTAL: \$46,006	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Morris, D. H.	LARC/Poe, C. C., Jr.	47-Materials Engr
	LARC/Phillips, E. P.	

NAG 1-227 **Va Polytechnic Inst & St Univ** **4916**
Viscoelastic characterization and lifetime predictions of structural adhesives

<i>Period</i>	<i>Obligations</i>	
11/01/81-10/31/82	FY82: \$19,997 TOTAL: \$19,997	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Brinson, H. F.	LARC/Johnson, W. S.	46-Mech Engr
	LARC/Everett, R. A., Jr.	

NAG 1-274 **Va Polytechnic Inst & St Univ** **4923**
An experimental study of pressures on 60 deg delta wings with leading edge vortex flaps

<i>Period</i>	<i>Obligations</i>	
07/01/82-06/30/83	FY82: \$27,257 TOTAL: \$27,257	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Marchman, J. F., III	LARC/Frink, N. T.	41-Aero Engr

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NAG 1-280 **Va Polytechnic Inst & St Univ** **4924**
Three-dimensional interactions of disturbances in boundary layers

<i>Period</i>	<i>Obligations</i>	
06/01/82-06/15/83	FY82: \$60,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Saric, W. S.	LARC/Hefner, J. N.	41-Aero Engr
	LARC/Bushnell, D. M.	

NAG 3-124 **Va Polytechnic Inst & St Univ** **4931**
Characterization of gas turbine combustor noise sources from far-field measurements

<i>Period</i>	<i>Obligations</i>	
11/03/80-12/15/82	FY82: \$33,262	TOTAL: \$66,394
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mahan, J. R.	LERC/Krejsa, E. A.	41-Aero Engr

NAG 1-289 **Va Polytechnic Inst & St Univ** **4925**
Computation of nonlinear supersonic flows using a stream function approach

<i>Period</i>	<i>Obligations</i>	
06/21/82-09/20/82	FY82: \$13,098	TOTAL: \$13,098
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Grossman, B.	LARC/Dwoyer, D. L.	41-Aero Engr
	LARC/Townsend, J. C.	

NAG 3-172 **Va Polytechnic Inst & St Univ** **4932**
Study of the stress wave factor technique for the characterization of composite materials

<i>Period</i>	<i>Obligations</i>	
04/01/81-12/30/82	FY82: \$29,997	TOTAL: \$38,814
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henneke, E. G.	LERC/Vary, A.	47-Materials Engr
Stinchcomb, W. W.		
Duke, J. C., Jr.		

NAG 1-291 **Va Polytechnic Inst & St Univ** **4926**
Displacement measurements on stiffened composite panels

<i>Period</i>	<i>Obligations</i>	
08/15/82-01/14/83	FY82: \$4,977	TOTAL: \$4,977
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Post, D.	LARC/Williams, J. G.	41-Aero Engr
Herakovich, C. T.	LARC/Lopez, O. F.	

NAG 3-208 **Va Polytechnic Inst & St Univ** **4933**
Graduate research projects in nonlinear and 3-D structural analysis

<i>Period</i>	<i>Obligations</i>	
08/29/81-08/27/83	FY82: \$30,000	TOTAL: \$59,933
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Reddy, J. N.	LERC/Charms, C. C.	41-Aero Engr
	LERC/Hirschbein, M. S.	

NAG 2-3 **Va Polytechnic Inst & St Univ** **4927**
Weld microstructure, stress state and the effect of hydrogen on fatigue crack initiation in X-65 steel

<i>Period</i>	<i>Obligations</i>	
11/01/79-10/31/80	FY82:	TOTAL: \$43,292
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Louthan, M. R.	ARC/Nelson, H. G.	47-Materials Engr
McNitt, R. P.		

NAG 3-220 **Va Polytechnic Inst & St Univ** **4934**
Implementation of input filter compensation for switching regulators

<i>Period</i>	<i>Obligations</i>	
10/15/81-10/13/83	FY82: \$20,647	TOTAL: \$20,647
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, F. C.	LERC/Kolecki, J. C.	45-Elec Engr
Kelkar, S.	LERC/Banks, B. A.	

NAG 2-17 **Va Polytechnic Inst & St Univ** **4928**
Comparative evaluation of workload estimation techniques in piloting tasks

<i>Period</i>	<i>Obligations</i>	
01/15/80-02/14/83	FY82: \$63,050	TOTAL: \$241,959
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wierwille, W. W.	ARC/Hart, S.	99-Multi-Discip

NAG 3-240 **Va Polytechnic Inst & St Univ** **4935**
Feasibility study of bipolar-fet hybrid power transistors using discrete devices

<i>Period</i>	<i>Obligations</i>	
12/15/81-12/14/82	FY82: \$26,647	TOTAL: \$26,647
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Chen, D. D.	LERC/Sundberg, G. R.	45-Elec Engr

NAG 3-81 **Va Polytechnic Inst & St Univ** **4929**
Input filter compensation for switching regulators

<i>Period</i>	<i>Obligations</i>	
10/01/80-06/29/82	FY82:	TOTAL: \$35,090
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, F. C.	LERC/Kolecki, J. C.	45-Elec Engr

NAG 3-323 **Va Polytechnic Inst & St Univ** **4936**
Ultrasonic stress wave characterization of composite materials

<i>Period</i>	<i>Obligations</i>	
10/01/82-09/30/83	FY82: \$50,418	TOTAL: \$50,418
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Henneke, E. G., II	LERC/Vary, A.	47-Materials Engr
Duke, J. C., Jr.		
Stinchcomb, W. W.		

NAG 3-99 **Va Polytechnic Inst & St Univ** **4930**
High power transistor evaluations for electric vehicle applications

<i>Period</i>	<i>Obligations</i>	
09/15/80-09/13/83	FY82:	TOTAL: \$174,822
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lee, F. C.	LERC/Maslowski, E. A.	45-Elec Engr
Chen, D. D.		

NAG 5-131 **Va Polytechnic Inst & St Univ** **4937**
Structural-statistical approaches to analysis of macrotectures

<i>Period</i>	<i>Obligations</i>	
01/01/81-12/31/81	FY82:	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Haralick, R.	GSFC/Masouka, E.	32-Geological Sci

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NAG 8-314 **Va Polytechnic Inst & St Univ** **4938**
X-ray emission from optically-quiet compact radio sources, Lacertae objects and from bright optically selected quasars under the High Energy Astronomical observatory
Period *Obligations*
02/01/80-07/31/83 **FY82:** **TOTAL: \$2,895**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Odell, S. L. MSFC/Jones, J. B. 11-Astronomy
Ledden, J. E.
Condon, J. J.

NAG 8-348 **Va Polytechnic Inst & St Univ** **4939**
Coordinated High Energy Astronomical Observatory-2 observations of low-frequency variable radio sources
Period *Obligations*
06/20/80-06/20/83 **FY82:** **TOTAL: \$7,475**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'dell, S. L. MSFC/Stone, J. F. 11-Astronomy
Dennison, B. K.

NAG 8-432 **Va Polytechnic Inst & St Univ** **4940**
X-ray imaging of Crab-like supernova remnants and the Puppis A supernova remnant
Period *Obligations*
05/01/82-04/30/83 **FY82: \$12,706** **TOTAL: \$12,706**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becker, R. MSFC/Stone, J. F. 11-Astronomy

NAS 1-15080 **Va Polytechnic Inst & St Univ** **4941**
Research in the area of physical sciences
Period *Obligations*
08/25/77-09/30/81 **FY82:** **TOTAL: \$274,078**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable LARC/Hohl, F. 99-Multi-Discip

NAS 1-16508 **Va Polytechnic Inst & St Univ** **4942**
Analysis of Earth radiation budget/Earth radiation budget experiment sensors
Period *Obligations*
11/13/80-07/15/82 **FY82: \$14,665** **TOTAL: \$54,679**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mahan, J. R. LARC/Hinton, D. E. 31-Atmos Sci
LARC/Jalink, A.

NAS 1-17100 **Va Polytechnic Inst & St Univ** **4943**
Research in the area of physical and life sciences
Period *Obligations*
09/20/82-09/19/85 **FY82: \$26,700** **TOTAL: \$26,700**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable LARC/Prior, E. J. 99-Multi-Discip

NAS 5-22577 **Va Polytechnic Inst & St Univ** **4944**
Communications link characterization study
Period *Obligations*
09/08/76-04/07/85 **FY82:** **TOTAL: \$896,175**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bostian, C. W. GSFC/Hirschmann, E. 45-Elec Engr
Stutzman, W. L.
Wiley, P. H.

NAS 5-26199 **Va Polytechnic Inst & St Univ** **4945**
Services to support a demonstration project to determine the usefulness of LANDSAT data to Virginia's regional land use planning and resource management programs
Period *Obligations*
06/26/80-09/01/81 **FY82:** **TOTAL: \$10,005**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Munday, J. GSFC/Gervin, J. C. 39-Env Sci, NEC

NAS 5-26276 **Va Polytechnic Inst & St Univ** **4946**
Applicability of the massive parallel processor (MPP) to the utilization of ecological and landuse models
Period *Obligations*
08/15/80-08/14/81 **FY82:** **TOTAL: \$62,731**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haralick, R. GSFC/Argentiero, P. R. 29-Math/Computer, NEC

NAS 9-16281 **Va Polytechnic Inst & St Univ** **4947**
Brushless D. C. Motor and power conditioner fault models
Period *Obligations*
01/01/81-03/15/83 **FY82: \$84,515** **TOTAL: \$99,515**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nehl, T. W. JSC/Edge, J. T. 22-Computer Science

NCC 1-4 **Va Polytechnic Inst & St Univ** **4948**
Dynamics and control of large flexible spacecraft
Period *Obligations*
05/01/79-12/31/80 **FY82:** **TOTAL: \$49,992**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meirovitch, L. LARC/Montgomery, R. C. 42-Astro Engr

NCC 1-10 **Va Polytechnic Inst & St Univ** **4949**
Environmental effects on advanced aerospace materials
Period *Obligations*
08/01/79-12/31/82 **FY82: \$116,876** **TOTAL: \$347,713**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shields, G. LARC/Tenney, D. R. 39-Env Sci, NEC
Unnam, J. LARC/Clark, R. C.

NCC 1-15 **Va Polytechnic Inst & St Univ** **4950**
Composite materials research and education
Period *Obligations*
09/01/79-08/31/83 **FY82: \$187,057** **TOTAL: \$736,896**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ingram, J. LARC/Davis, J. G., Jr. 49-Engr, NEC
Hyer, M. W. LARC/Dexter, H. B.

NCC 1-20 **Va Polytechnic Inst & St Univ** **4951**
Graduate-study research program in aeronautics and air transportation systems
Period *Obligations*
07/01/79-08/31/81 **FY82:** **TOTAL: \$79,991**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hobeika, A. G. LARC/Erickson, W. D. 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)**

NSG 1524	Va Polytechnic Inst & St Univ	4967		
New aromatic polyamides containing n-propargyl groups as potential cross linking functions				
<i>Period</i>	<i>Obligations</i>			
06/01/78-02/28/83	FY82: \$36,997	TOTAL: \$120,430		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Wolfe, J. F.	LARC/St.Clair, T. L.	12-Chemistry		
NSG 1527	Va Polytechnic Inst & St Univ	4968		
Distributed surface control for large space systems				
<i>Period</i>	<i>Obligations</i>			
06/01/78-07/31/81	FY82:	TOTAL: \$127,373		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Vanlandingham, H. F. Johnson, C. R.	LARC/Montgomery, R. C.	45-Elec Engr		
NSG 1598	Va Polytechnic Inst & St Univ	4969		
Selected parameters to minimize community annoyance from airport noise				
<i>Period</i>	<i>Obligations</i>			
04/01/79-12/31/82	FY82: \$1,000	TOTAL: \$130,069		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Frair, L.	LARC/Deloach, R.	99-Multi-Discip		
NSG 1608	Va Polytechnic Inst & St Univ	4970		
Experiments to verify non-parallel stability theory				
<i>Period</i>	<i>Obligations</i>			
04/01/79-01/15/83	FY82: \$60,000	TOTAL: \$292,986		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Saric, W. S.	LARC/Hefner, J. N. LARC/Bushnell, D. M.	41-Aero Engr		
NSG 1621	Va Polytechnic Inst & St Univ	4971		
Use of two-dimensional transmission photoelastic models to study the stresses in double lap bolted joints				
<i>Period</i>	<i>Obligations</i>			
09/01/79-03/15/83	FY82: \$56,956	TOTAL: \$84,758		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Hyer, M. W.	LARC/Baker, D. J. LARC/Dexter, H. B.	47-Materials Engr		
NSG 2301	Va Polytechnic Inst & St Univ	4972		
Near-wall similarity in three-dimensional turbulent flows				
<i>Period</i>	<i>Obligations</i>			
04/01/78-03/31/83	FY82: \$68,868	TOTAL: \$293,783		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Pierce, F. J.	ARC/Marvin, J. G.	41-Aero Engr		
NSG 3073	Va Polytechnic Inst & St Univ	4973		
Studies of internal flowfields of high throat-Mach-number quiet engine inlets				
<i>Period</i>	<i>Obligations</i>			
10/01/75-10/31/81	FY82:	TOTAL: \$65,122		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Jakubowski, A. K.	LERC/Johns, A. L.	41-Aero Engr		
NSG 3239	Va Polytechnic Inst & St Univ	4974		
Investigation of torsional-axial-lateral coupled response of geared systems				
<i>Period</i>	<i>Obligations</i>			
01/02/79-06/14/83	FY82: \$59,249	TOTAL: \$196,292		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Mitchell, L. D.	LERC/Flemings, D. P. LERC/Kascak, A. F.	41-Aero Engr		
NSG 3274	Va Polytechnic Inst & St Univ	4975		
An improved model for switching converter power stages				
<i>Period</i>	<i>Obligations</i>			
06/01/79-08/28/82	FY82:	TOTAL: \$40,532		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Lee, F. C.	LERC/Kolecki, J. C.	45-Elec Engr		
NSG 3275	Va Polytechnic Inst & St Univ	4976		
An adaptive controller for an aircraft gas turbine propulsion system				
<i>Period</i>	<i>Obligations</i>			
05/01/79-12/31/81	FY82:	TOTAL: \$40,713		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Leonard, R. G.	LERC/Lehtinen, B.	41-Aero Engr		
NSG 6030	Va Polytechnic Inst & St Univ	4977		
Agro-environmental monitoring and management model development and implementation program				
<i>Period</i>	<i>Obligations</i>			
04/01/79-06/30/82	FY82:	TOTAL: \$119,368		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Powell, N. L.	GSFC/Scott, J. H., Jr.	19-Phys Sci, NEC		
NSG 6031	Va Polytechnic Inst & St Univ	4978		
Development of water management systems for crop production utilizing soil, crop and agro environmental monitoring systems data				
<i>Period</i>	<i>Obligations</i>			
04/01/79-06/30/82	FY82:	TOTAL: \$93,400		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Powell, N. L.	GSFC/Scott, J. H., Jr.	19-Phys Sci, NEC		
NSG 1342	Virginia State University	4979		
Material science and solid state physics studies with positive muon spin precession				
<i>Period</i>	<i>Obligations</i>			
01/01/77-09/30/82	FY82:	TOTAL: \$99,824		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Stronach, C. E.	LARC/Singh, J. J.	13-Physics		
NSG 1646	Virginia State University	4980		
Medium-energy nuclear physics studies				
<i>Period</i>	<i>Obligations</i>			
10/01/79-05/31/81	FY82:	TOTAL: \$26,618		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
Stronach, C. E.	LARC/Wilson, J. W.	13-Physics		

**NASA'S UNIVERSITY PROGRAM
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WASHINGTON

NAG 5-187 **Evergreen State College** **4981**
Study of nova outburst
Period *Obligations*
06/15/81-09/30/82 FY82: \$9,986 TOTAL: \$18,760
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kutter, G. S. GSFC/Sparks, W. M. 11-Astronomy

DEN 3-212 **University of Washington** **4982**
Design study of hydraulic output of 15 kw Stirling free piston engine
Period *Obligations*
12/24/80-01/16/82 FY82: TOTAL: \$64,741
Prin. Invest. *NASA Tech. Officer* *CASE Category*
White, M. LERC/Alger, D. A. 45-Elec Engr

NAG 1-41 **University of Washington** **4983**
Radiation viewfactor analysis
Period *Obligations*
03/01/80-09/15/83 FY82: \$49,516 TOTAL: \$144,238
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emery, A. F. LARC/Pittman, C. M. 46-Mech Engr
Kippenham, C. J. LARC/Wieting, A. R.

NAG 1-149 **University of Washington** **4984**
Air-sea interaction studies for satellite measurements
Period *Obligations*
03/01/81-02/28/83 FY82: TOTAL: \$125,534
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, R. A. LARC/Grantham, W. L.
Katsaros, K. 33-Oceanography
Businger, J.

NAG 1-176 **University of Washington** **4985**
Study of blackbody-pumped lasers
Period *Obligations*
04/01/81-01/14/83 FY82: \$55,808 TOTAL: \$90,672
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Christiansen, W. H. LARC/Deyoung, R. J. 13-Physics
LARC/Conway, E. J.

NAG 2-66 **University of Washington** **4986**
Wave dynamics and transport in the stratosphere
Period *Obligations*
10/01/80-10/31/82 FY82: TOTAL: \$229,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holton, J. R. ARC/Summers, A. L. 31-Atmos Sci

NAG 2-80 **University of Washington** **4987**
Muscle fiber type distribution relative to muscle weakness: A new method
Period *Obligations*
12/01/80-11/30/81 FY82: TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ellis, S. ARC/Ellis, S. 51-Biological Sci

NAG 2-120 **University of Washington** **4988**
The modelling of fibrous refractory composite insulation for development studies
Period *Obligations*
07/01/81-10/31/82 FY82: \$15,000 TOTAL: \$64,490
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, J. I. ARC/Goldstein, H. E. 47-Materials Engr
Bollard, R. J.

NAG 3-7 **University of Washington** **4989**
In service shaping of abradable seals
Period *Obligations*
12/01/79-01/31/83 FY82: \$29,999 TOTAL: \$118,389
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wolak, J. LERC/Kascar, A. F. 46-Mech Engr
Emery, A. F. LERC/Kiraly, L. J.

NAG 3-16 **University of Washington** **4990**
Research related to the technology of radiation machinery and high power gas lasers
Period *Obligations*
12/17/79-01/14/83 FY82: \$176,773 TOTAL: \$494,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hertzberg, A. LERC/Mroz, T. S. 13-Physics

NAG 3-227 **University of Washington** **4991**
Interactive computer modelling of combustion chemistry
Period *Obligations*
11/15/81-11/14/83 FY82: \$100,320 TOTAL: \$100,320
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pratt, D. T. LERC/Marek, C. J. 46-Mech Engr

NAG 3-256 **University of Washington** **4992**
Investigation of the interaction of a skewed shock wave and a turbulent boundary layer in an axi-symmetric flow channel
Period *Obligations*
02/15/82-02/14/83 FY82: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Childs, M. E. LERC/Hingst, W. R. 41-Aero Engr

NAG 5-45 **University of Washington** **4993**
Observations of selected astronomical objects
Period *Obligations*
04/15/80-11/14/82 FY82: \$9,200 TOTAL: \$21,546
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bohm, K. H. GSFC/Kondo, Y. 11-Astronomy
Bohm-vitense, E.

NAG 5-160 **University of Washington** **4994**
Remote sensing of sea ice floe size distribution and surface topography
Period *Obligations*
04/01/81-03/31/82 FY82: TOTAL: \$101,202
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rothrock, D. A. GSFC/Rao, D. B. 33-Oceanography
Thorndike, A. S.

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NAGW 85 University of Washington 5009
Geologic remote sensing
Period *Obligations*
09/16/80-09/15/84 FY82: TOTAL: \$350,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, J. B. HQ-ET/Vitale, J. A. 32-Geological Sci

NAGW 199 University of Washington 5010
Interdisciplinary research and development on the effects of the nature and properties of ceramic materials
Period *Obligations*
07/01/81-06/30/85 FY82: \$400,000 TOTAL: \$1,015,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, J. I. HQ-RT/Bersch, C. F. 47-Materials Engr
HQ-RT/Greenfield, M. A.

NAGW 228 University of Washington 5011
Analysis of the Viking Lander I surface wind vector for SOLS 45-376
Period *Obligations*
07/15/81-09/30/82 FY82: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leovy, C. B. HQ-EL/Murphy, R. E. 31-Atmos Sci

NAGW 281 University of Washington 5012
Lifetime prediction and improvement studies for the Space Shuttle thermal protection system
Period *Obligations*
10/01/81-09/30/82 FY82: \$212,095 TOTAL: \$212,095
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mueller, J. I. HQ-MR/Greenshields, D. 49-Engr, NEC
HQ/Lafley, M.

NAGW 303 University of Washington 5013
Air-sea interaction studies of satellite measurements
Period *Obligations*
04/01/82-03/31/83 FY82: \$97,931 TOTAL: \$97,931
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, R. A. HQ-EE/McGoldrick, L. F.
Katsaros, K. HQ-EE/Wilson, W. S. 33-Oceanography
Businger, J.

NAGW 328 University of Washington 5014
Impact crater scaling laws
Period *Obligations*
06/16/82-06/15/83 FY82: \$34,656 TOTAL: \$34,656
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holsapple, K. A. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NAGW 366 University of Washington 5015
Air sea interaction for satellite measure
Period *Obligations*
04/01/82-06/30/83 FY82: \$35,000 TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Katsaros, K. B. HQ-EE/McGoldrick, L. F.
HQ-EE/Wilson, W. S. 33-Oceanography

NAS 1-14341 University of Washington 5016
Science support for the limb infrared monitor of the stratosphere experiment
Period *Obligations*
04/12/76-09/30/82 FY82: \$1,279 TOTAL: \$138,609
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leovy, C. B. LARC/Hinton, D. E. 31-Atmos Sci
LARC/Russell, J. M.

NAS 1-16462 University of Washington 5017
Scientific investigations for the Earth radiation budget experiment (ERBE)
Period *Obligations*
09/30/80-09/29/85 FY82: \$5,000 TOTAL: \$16,020
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hartman, D. L. LARC/Hall, J. B. 31-Atmos Sci
Wallace, J. M. LARC/Barkstrom, B. R.

NAS 1-17108 University of Washington 5018
Development of techniques for rapid and user-friendly access to large and complex data sets through the relational information management system (RIMS)
Period *Obligations*
08/12/82-10/26/83 FY82: \$64,000 TOTAL: \$64,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Erickson, W. J. LARC/Salley, G. C.
Buss, J. A. 22-Computer Science

NAS 1-17170 University of Washington 5019
Numerical prediction of thrust reversing effects of two dimensional nonaxisymmetric nozzles
Period *Obligations*
09/20/82-09/27/83 FY82: \$49,025 TOTAL: \$49,025
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacCormack, R. W. LARC/Putnam, L. E. 41-Aero Engr
LARC/Wilmoth, R. G.

NAS 5-26262 University of Washington 5020
Nimbus 7 liquid water and vapor data studies
Period *Obligations*
09/26/80-03/25/83 FY82: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Katsaros, K. B. GSFC/Nelson, D. 31-Atmos Sci

NAS 5-26301 University of Washington 5021
Wave dynamics and transport in the middle atmosphere
Period *Obligations*
10/01/80-12/30/82 FY82: TOTAL: \$10,516
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holton, J. R. GSFC/Donley, J. 31-Atmos Sci

NAS 5-26850 University of Washington 5022
Fast and versatile 3-D plasma experiment to study magnetospheric dynamics
Period *Obligations*
05/04/82-08/04/83 FY82: \$58,000 TOTAL: \$58,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parks, G. K. GSFC/O'Brien, J. 13-Physics

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NAS 8-33148 University of Washington 5023
Atmospheric cloud physics laboratory gas scavenging experiment

<i>Period</i>	<i>Obligations</i>	
07/07/78-12/31/81	FY82: TOTAL: \$176,026	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Hobbs, P. V.	MSFC/Smith, R. E.	31-Atmos Sci
	MSFC/Keller, V. W.	

NAS 8-33337 University of Washington 5024
X-ray and optical study of the high polarization of variable stars

<i>Period</i>	<i>Obligations</i>	
02/23/79-07/31/81	FY82: TOTAL: \$10,925	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Szkody, P.	MSFC/Jones, J. B., Jr.	11-Astronomy
Wallerstein, G.		
Crosa, L.		

NAS 8-33884 University of Washington 5025
Research study: Theory of global lightning as seen from a satellite

<i>Period</i>	<i>Obligations</i>	
07/22/80-07/21/83	FY82: TOTAL: \$14,657	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Ely, J. T.	MSFC/Smith, R. E.	31-Atmos Sci
	MSFC/Jasper, G.	

NCA 2-850001 University of Washington 5026
1980 land cover classification for the Puget Sound region

<i>Period</i>	<i>Obligations</i>	
03/01/80-09/30/81	FY82: TOTAL: \$42,000	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Shinn, R. D.	ARC/Wilson, D. E.	39-Env Sci, NEC

NCA 2-850002 University of Washington 5027
Development of remote sensing techniques for Alaska wetlands delineation

<i>Period</i>	<i>Obligations</i>	
09/01/80-05/31/82	FY82: \$2,600 TOTAL: \$28,126	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Westerlund, F. V.	ARC/Wilson, D. E.	39-Env Sci, NEC

NCA 2-850101 University of Washington 5028
Use of campus facilities and services to advance options for externalization of Vicar/Ibis

<i>Period</i>	<i>Obligations</i>	
03/15/81-09/15/81	FY82: TOTAL: \$19,000	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Shinn, R. D.	ARC/Lumb, D. R.	39-Env Sci, NEC

NCA 2-850102 University of Washington 5029
An analysis of the 4-20 micron excess flux in the spectrum of long period variable stars

<i>Period</i>	<i>Obligations</i>	
07/01/81-08/31/81	FY82: TOTAL: \$1,500	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Cardelli, J. A.	ARC/Witteborn, F. C.	11-Astronomy
Bohm, K. H.	ARC/Scargle, J. D.	

NGL 48-002-004 University of Washington 5030
Multidisciplinary research in materials sciences with emphasis on investigation of inorganic nonmetallic ceramic materials

<i>Period</i>	<i>Obligations</i>	
06/28/73-09/30/81	FY82: TOTAL: \$5,377,897	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Mueller, J. I.	HQ-RT/Bersch, C.	47-Materials Engr
	HQ-RT/Greenfield, M. A.	

NGL 48-002-047 University of Washington 5031
Interaction shock wave and turbulent boundary layer

<i>Period</i>	<i>Obligations</i>	
10/01/81-09/30/82	FY82: TOTAL: \$442,659	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Childs, M. E.	ARC/Lee, G.	41-Aero Engr

NGR 48-002-141 University of Washington 5032
Research program in aeronautics and air transportation

<i>Period</i>	<i>Obligations</i>	
09/15/72-10/31/82	FY82: \$50,000 TOTAL: \$423,485	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Childs, M. E.	ARC/Lee, G.	41-Aero Engr
Gessner, F. B.		

NSG 2176 University of Washington 5033
Wind shear detection by total energy method for use in landing of aircraft

<i>Period</i>	<i>Obligations</i>	
10/01/76-06/30/81	FY82: TOTAL: \$101,000	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Joppa, R. G.	ARC/Watson, D. M.	41-Aero Engr

NSG 2362 University of Washington 5034
Direct measurement of extinction by stratospheric aerosols

<i>Period</i>	<i>Obligations</i>	
01/01/79-12/31/82	FY82: \$53,446 TOTAL: \$223,224	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Charlson, R. J.	ARC/Snetsinger, K. G.	31-Atmos Sci

NSG 2365 University of Washington 5035
Configuration interaction

<i>Period</i>	<i>Obligations</i>	
07/01/79-06/30/82	FY82: \$12,500 TOTAL: \$68,000	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Davidson, E. R.	ARC/Langhoff, S. R.	12-Chemistry

NSG 3261 University of Washington 5036
Design methods for shock-free cascades with future application to turbomachinery components

<i>Period</i>	<i>Obligations</i>	
03/15/79-09/30/81	FY82: TOTAL: \$77,449	
<i>Prin. Invest.</i>	NASA Tech. Officer	CASE Category
Dickson, L. J.	LERC/Braun, W. H.	41-Aero Engr
Hertzberg, A.		

**NASA'S UNIVERSITY PROGRAM
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NSG 5374 **University of Washington** **5037**
Kinematics and physical conditions in shocked clouds in
supernova remnants
Period *Obligations*
06/01/79-09/30/82 FY82: TOTAL: \$31,647
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wallerstein, G. GSFC/Boggess, A. 11-Astronomy

NSG 5395 **University of Washington** **5038**
Ultraviolet observations of selected cataclysmic variables
Period *Obligations*
07/01/79-09/30/83 FY82: \$12,800 TOTAL: \$38,204
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Skzody, P. GSFC/Kondo, Y. 11-Astronomy

NSG 5398 **University of Washington** **5039**
Observations of classical stellar chromospheres
Period *Obligations*
07/15/79-10/31/82 FY82: \$18,600 TOTAL: \$57,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bohm-vitense, E. GSFC/Kondo, Y. 11-Astronomy
Wallerstein, G.

NSG 7085 **University of Washington** **5040**
Dynamics of planetary atmospheres
Period *Obligations*
07/01/74-12/31/82 FY82: TOTAL: \$342,422
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leovy, C. B. HQ-EL/Brinton, H. C. 31-Atmos Sci
HQ-EL/Brunk, W. E.

NSG 7173 **University of Washington** **5041**
Application of spectral reflectance of lunar samples to telescopic
spectra of unvisited parts of the Moon
Period *Obligations*
07/01/75-10/31/82 FY82: TOTAL: \$323,331
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, J. B. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/French, B. M.

NSG 7313 **University of Washington** **5042**
Crystal-liquid distribution coefficients for selected elements
Period *Obligations*
03/01/77-02/28/83 FY82: \$31,044 TOTAL: \$249,385
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCallum, I. S. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/Taylor, L. A.

NSG 7611 **University of Washington** **5043**
Investigations of Martian meteorological processes using Viking
meteorological data
Period *Obligations*
03/01/79-09/30/82 FY82: TOTAL: \$168,974
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leovy, C. HQ-EL/Brinton, H. C. 31-Atmos Sci

NSG 9032 **University of Washington** **5044**
Reflectance spectroscopy of lunar samples
Period *Obligations*
07/01/75-04/30/83 FY82: TOTAL: \$339,805
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, J. D. JSC/Dietrich, J. W. 32-Geological Sci

NSG 9052 **University of Washington** **5045**
A study of interplanetary dust
Period *Obligations*
03/01/77-01/31/83 FY82: \$106,000 TOTAL: \$630,018
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brownlee, D. E. JSC/Dietrich, J. W. 31-Atmos Sci

NAS 5-25994 **Walla Walla College** **5046**
Study of high-speed complex number algorithms
Period *Obligations*
01/21/80-01/21/81 FY82: TOTAL: \$15,905
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heisler, R. GSFC/Schmidt, R. 21-Mathematics

NAG 2-97 **Washington State University** **5047**
Measurement of OH radicals in the lower atmosphere by the
14C tracer method
Period *Obligations*
03/01/81-02/28/83 FY82: \$145,581 TOTAL: \$225,581
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Campbell, W. J. ARC/Starr, W. L. 31-Atmos Sci
Sheppard, J. C.

NAGW 234 **Washington State University** **5048**
Extinct nuclides in meteorites
Period *Obligations*
08/15/81-02/28/83 FY82: \$10,120 TOTAL: \$11,620
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Srinivasan, B. HQ-EL/Taylor, L. A. 32-Geological Sci
HQ-EL/Quaide, W. L.

NCA 2-840001 **Washington State University** **5049**
Joint use of facilities for establishing operational capabilities of
Washington state agencies and municipalities in the use of image
processing
Period *Obligations*
04/01/80-08/31/81 FY82: TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krebs, L. T. ARC/Wilson, D. E. 39-Env Sci, NEC
Scuderi, P. V.

NCA 2-840002 **Washington State University** **5050**
The physics and chemistry of supported metal clusters
Period *Obligations*
06/01/80-10/01/82 FY82: TOTAL: \$44,605
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dickinson, J. T. ARC/Poppa, H. R. 13-Physics

**NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)**

NCA 2-840102 **Washington State University** **5051**
ESD effects and hydrogen mapping on structured metallic deposits

<i>Period</i>	<i>Obligations</i>	
06/01/81-05/31/83	FY82: TOTAL: \$30,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics

NCA 2-862101 **Western Washington University** **5058**
Infrared and far-infrared interferometer studies of molecules of astronomical interest

<i>Period</i>	<i>Obligations</i>	
03/16/81-01/01/82	FY82: TOTAL: \$10,141	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, H. M.	ARC/Boese, R. W.	12-Chemistry

NCA 2-840201 **Washington State University** **5052**
Investigation of substrate effects in model catalytic systems

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/84	FY82: \$15,000 TOTAL: \$15,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics

NCA 2-862201 **Western Washington University** **5059**
Calculation of individual line and band strengths vibration/rotation transitions in acetylene

<i>Period</i>	<i>Obligations</i>	
06/14/82-12/31/82	FY82: \$5,500 TOTAL: \$5,500	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wilson, H. W.	ARC/Chackerian, C. C., Jr.	12-Chemistry

NCA 2-840202 **Washington State University** **5053**
Fracto-emission from graphite/epoxy composites

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$10,972 TOTAL: \$10,972	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dickinson, J. T.	ARC/Nelson, H.	13-Physics

WEST VIRGINIA

NGT 49-001-800 **West Virginia University** **5060**
Graduate student researchers program

<i>Period</i>	<i>Obligations</i>	
05/15/81-08/16/83	FY82: TOTAL: \$13,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Padhye, A.	HQ-LB/Carter, C. H.	46-Mech Engr

NCC 2-69 **Washington State University** **5054**
The nucleation, growth, and in-situ oxidation of microscopic crystallites of transition metals on refractory oxide substrates

<i>Period</i>	<i>Obligations</i>	
04/15/80-08/31/82	FY82: TOTAL: \$89,017	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics
Anton, R.		

WISCONSIN

NAS 8-32901 **Beloit College** **5061**
Scientific investigations in support of the space telescope project

<i>Period</i>	<i>Obligations</i>	
02/22/78-12/31/84	FY82: TOTAL: \$102,965	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schroeder, D. J.	MSFC/O'dell, C. R.	11-Astronomy

NCC 2-118 **Washington State University** **5055**
High resolution scanning Auger spectroscopy on advanced turbine blade materials

<i>Period</i>	<i>Obligations</i>	
03/01/81-02/28/82	FY82: TOTAL: \$43,279	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Dickinson, J. T.	ARC/Poppa, H. R.	13-Physics
Larson, L. A.		

NAG 1-65 **Marquette University** **5062**
A new observer system for determining orientation of balloon-borne observational platforms

<i>Period</i>	<i>Obligations</i>	
07/01/80-09/30/81	FY82: TOTAL: \$32,807	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Nigro, N. J.	LARC/Hinton, D. E.	29-Math/Cmputer,NEC

NSG 5383 **Washington State University** **5056**
Observations of planetary nebula shells and central stars

<i>Period</i>	<i>Obligations</i>	
07/01/79-12/31/81	FY82: TOTAL: \$4,166	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Lutz, J. H.	GSFC/Bogges, A.	11-Astronomy

NSG 7214 **Washington State University** **5057**
Atmospheric measurements of nitrous oxide and the halocarbons

<i>Period</i>	<i>Obligations</i>	
02/01/76-03/02/83	FY82: \$49,888 TOTAL: \$381,263	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cronn, D.	HQ-EE/Chandra, S.	31-Atmos Sci
Robinson, E.	HQ-EE/Watson, R. T.	

NAS 9-15711 **Marquette University** **5063**
Alterations in skeletal muscle with disuse atrophy

<i>Period</i>	<i>Obligations</i>	
09/21/78-12/31/81	FY82: TOTAL: \$137,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fitts, R. H.	JSC/Smith, M. C., Jr.	59-Life Sci, NEC

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NAS 2-11305 Medical College of Wisconsin 5064
Electron microscopy, electromyography and protease activity of rat hind limb muscles

Period	Obligations	
08/02/82-01/14/83	FY82: \$57,753	TOTAL: \$57,753
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Riley, D. A.	ARC/Kennard, J.	51-Biological Sci

NAG 3-170 University of Wisconsin - Madison 5071
Cryogenic energy storage for space applications

Period	Obligations	
03/30/81-09/30/82	FY82:	TOTAL: \$28,578
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Boom, R. W.	LERC/Renz, D. D.	45-Elec Engr
Eyssa, U. M.		

NCA 2-432201 Medical College of Wisconsin 5065
Hypertrophogenic factors in muscle stretch and activity

Period	Obligations	
10/01/81-09/30/83	FY82:	TOTAL: \$25,278
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Riley, D. A.	ARC/Ellis, S.	56-Medical Sciences

NAG 3-174 University of Wisconsin - Madison 5072
An investigation of the atmospheric effects on coastal zone color scanner (CZCS) data

Period	Obligations	
04/10/81-08/19/82	FY82:	TOTAL: \$31,515
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scarpace, F. L.	LERC/Shook, D. F.	31-Atmos Sci
Weiler, P. R., Jr.		

NAG 1-118 University of Wisconsin - Madison 5066
Development of an algorithm for removal of directional ambiguity from microwave scatter surface wind measurements

Period	Obligations	
11/13/80-12/31/82	FY82:	TOTAL: \$39,324
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hinton, B. B.	LARC/Schroeder, L. C.	33-Oceanography
Wylie, D. P.		
Suomi, V. E.		

NAG 3-274 University of Wisconsin - Madison 5073
Effects of alternate fuels properties on combustion and emission mechanisms in direct injected engines

Period	Obligations	
07/01/82-06/30/83	FY82: \$75,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Borman, G. L.	LERC/Simon, F. F.	46-Mech Engr
Meyers, P. S.		
Foster, D. E.		

NAG 1-212 University of Wisconsin - Madison 5067
Measurements systems and instrumentation development for energy related pollutants

Period	Obligations	
08/24/81-12/31/82	FY82:	TOTAL: \$67,898
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eloranta, E. W.	LARC/Browell, E. V.	31-Atmos Sci
Roesler, F. L.	LARC/Shiple, S. T.	

NAG 5-23 University of Wisconsin - Madison 5074
Analysis of three-dimensional thunderstorm model output in terms of geosynchronous satellite observations

Period	Obligations	
03/01/80-03/31/83	FY82: \$31,053	TOTAL: \$73,592
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schlesinger, R. E.	GSFC/Adler, R. F.	31-Atmos Sci

NAG 2-93 University of Wisconsin - Madison 5068
Morphology and movements of polarization features

Period	Obligations	
01/01/81-11/30/82	FY82:	TOTAL: \$26,914
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Limaye, S. S.	ARC/Fimmel, R. O.	19-Phys Sci, NEC

NAG 5-81 University of Wisconsin - Madison 5075
Resolution studies and energy diagnostics of global data and climate model simulations

Period	Obligations	
06/15/80-12/14/82	FY82:	TOTAL: \$38,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, D. R.	GSFC/Atlas, R. M.	31-Atmos Sci

NAG 2-166 University of Wisconsin - Madison 5069
Measurements of trabecular bones

Period	Obligations	
01/01/82-12/31/82	FY82: \$27,974	TOTAL: \$27,974
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mazess, R. B.	ARC/Young, D. R.	56-Medical Sciences
Cameron, J. R.		

NAG 5-128 University of Wisconsin - Madison 5076
New mathematical methods for vocational objective analysis of meteorological information

Period	Obligations	
12/01/80-03/31/83	FY82: \$84,958	TOTAL: \$167,889
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Wahba, G.	GSFC/Kalnay, E.	31-Atmos Sci
Johnson, D. R.		

NAG 2-167 University of Wisconsin - Madison 5070
Identification of an unknown humoral agent responsible for bone mobilization

Period	Obligations	
03/01/82-02/28/83	FY82: \$70,000	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Deluca, H. F.	ARC/Young, D. R.	51-Biological Sci
Schnoes, H. K.		

NAG 5-186 University of Wisconsin - Madison 5077
Ultraviolet studies with satellite data

Period	Obligations	
06/15/81-10/31/82	FY82: \$18,120	TOTAL: \$92,496
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Savage, B. D.	GSFC/Kondo, Y.	11-Astronomy
Fitzpatrick, E. L.		
Massa, D. L.		

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NAG 5-274 University of Wisconsin - Madison 5078
Technique development to improve satellite soundings over radiatively complex terrain conditions

<i>Period</i>	<i>Obligations</i>	
09/01/82-08/31/83	FY82: \$37,488	TOTAL: \$37,488
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Susskind, J.	31-Atmos Sci
Smith, W. L.		

NAGW 275 University of Wisconsin - Madison 5085
Charged particle acceleration mechanisms in sparse plasmas double layers

<i>Period</i>	<i>Obligations</i>	
01/15/82-01/14/83	FY82: \$36,000	TOTAL: \$36,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Hershkovitz, N.	HQ-EZ/Lynch, J. T.	19-Phys Sci, NEC
	HQ-EZ/Schmerling, E. R.	

NAG 8-319 University of Wisconsin - Madison 5079
A study of soft X-ray absorption by dense interstellar clouds under the High Energy Astronomical Observatory-B guest investigator program

<i>Period</i>	<i>Obligations</i>	
02/01/80-01/31/81	FY82: \$8,233	TOTAL: \$8,233
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kraushaar, W. L.	MSFC/Jones, J. B.	11-Astronomy
Sanders, W. T.		

NAGW 283 University of Wisconsin - Madison 5086
Studies of the supermassive central star of the 30 poradus nebula and related objects

<i>Period</i>	<i>Obligations</i>	
02/01/82-01/31/83	FY82: \$25,614	TOTAL: \$25,614
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	HQ-EZ/Weiler, E. J.	11-Astronomy
	HQ-EZ/Bogges, N. W.	

NAG 8-345 University of Wisconsin - Madison 5080
Observations and analysis of X-ray emission AE/BE stars: Simultaneous X-rays and ultraviolet observations of QB supergiants; Search and analysis for X-ray emission from luminous early type stars

<i>Period</i>	<i>Obligations</i>	
03/01/80-12/31/81	FY82: \$27,411	TOTAL: \$27,411
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	MSFC/Jones, J. B.	11-Astronomy

NAGW 314 University of Wisconsin - Madison 5087
Studies of Jupiter's atmospheric circulation and cloud structure

<i>Period</i>	<i>Obligations</i>	
04/15/82-04/14/83	FY82: \$85,000	TOTAL: \$85,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	HQ-EL/Brinton, H. C.	31-Atmos Sci
	HQ-EL/Brunk, W. E.	

NAG 8-401 University of Wisconsin - Madison 5081
X-ray absorption by dark nebulae

<i>Period</i>	<i>Obligations</i>	
06/15/81-06/17/83	FY82: \$9,305	TOTAL: \$9,305
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sanders, W. T.	MSFC/Stone, J. F.	11-Astronomy

NAS 1-14136 University of Wisconsin - Madison 5088
Laser radar for meteorological measurements

<i>Period</i>	<i>Obligations</i>	
09/11/75-06/30/82	FY82: \$799,573	TOTAL: \$799,573
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eloranta, E.	LARC/Browell, E. V.	31-Atmos Sci
Weinman, J. A.	LARC/Carter, A. F.	
Roesler, F. L.		

NAG 8-410 University of Wisconsin - Madison 5082
Completion of the survey of Wolf Rayet stars which have optical OVI emission, X-ray emission from symbiotic stars: Ag Dra, observations and analysis of X-ray emission from AE/BE stars

<i>Period</i>	<i>Obligations</i>	
07/28/81-03/01/83	FY82: \$25,723	TOTAL: \$25,723
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Cassinelli, J. P.	MSFC/Stone, J. F.	11-Astronomy
Vanderhucht, K. A.		

NAS 1-16507 University of Wisconsin - Madison 5089
Science support for the Earth radiation budget experiment (ERBE)

<i>Period</i>	<i>Obligations</i>	
10/17/80-10/16/85	FY82: \$9,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, W. L.	LARC/Hall, J. B., Jr.	31-Atmos Sci
Suomi, V. W.	LARC/Barkstrom, B. R.	
Sromovsky, L. A.		

NAG 8-431 University of Wisconsin - Madison 5083
Limits on coronal material in normal galaxies

<i>Period</i>	<i>Obligations</i>	
05/01/82-04/30/83	FY82: \$6,099	TOTAL: \$6,099
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
McCammon, D.	MSFC/Stone, J. F.	11-Astronomy

NAS 2-10359 University of Wisconsin - Madison 5090
Dual photon absorptometry system for ground based measurements of the lumbar spine in man

<i>Period</i>	<i>Obligations</i>	
09/24/79-11/15/80	FY82: \$30,047	TOTAL: \$30,047
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mazess, R.	ARC/Young, D. R.	56-Medical Sciences

NAGW 47 University of Wisconsin - Madison 5084
Interpretation of results from the Pioneer Venus net radiometer experiment

<i>Period</i>	<i>Obligations</i>	
02/01/80-04/30/82	FY82: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	HQ-EL/Brinton, H.	31-Atmos Sci

NAS 5-21965 University of Wisconsin - Madison 5091
Development of an IR temperature sounder for SMS spacecraft

<i>Period</i>	<i>Obligations</i>	
08/01/73-09/30/83	FY82: \$563,710	TOTAL: \$3,643,325
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci
Menzel, P.	GSFC/Gary, J. P.	

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NAS 5-23462 University of Wisconsin - Madison 5092
Global atmospheric research project

<i>Period</i>	<i>Obligations</i>	
06/07/76-04/30/81	FY82: TOTAL: \$335,285	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci

NAS 5-25977 University of Wisconsin - Madison 5099
Investigation of Antarctic crust and upper mantle using MAGSAT and other geophysical data

<i>Period</i>	<i>Obligations</i>	
01/18/80-11/18/82	FY82: TOTAL: \$83,875	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bentley, C. R.	GSFC/Oseroff, H.	32-Geological Sci

NAS 5-24385 University of Wisconsin - Madison 5093
Operation of a biomedical applications team

<i>Period</i>	<i>Obligations</i>	
12/19/77-12/31/80	FY82: TOTAL: \$569,784	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Siedbank, M. P. Huston, N. E.	GSFC/Friedman, D. S.	56-Medical Sciences

NAS 5-26055 University of Wisconsin - Madison 5100
Generate an investigation development plan and establish the preliminary interface for the Wisconsin ultraviolet photoelectric polarimeter experiment

<i>Period</i>	<i>Obligations</i>	
02/29/80-12/31/81	FY82: TOTAL: \$254,061	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Code, A. D.	GSFC/Young, E.	11-Astronomy

NAS 5-24487 University of Wisconsin - Madison 5094
High speed photometer for the space telescope printer

<i>Period</i>	<i>Obligations</i>	
03/08/78-01/31/85	FY82: \$925,000 TOTAL: \$4,550,719	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Bliss, R.	GSFC/Sours, W.	11-Astronomy

NAS 5-26078 University of Wisconsin - Madison 5101
Generate an investigation development plan and establish preliminary interfaces for the diffuse soft X-ray Bragg spectrometer

<i>Period</i>	<i>Obligations</i>	
03/10/80-03/31/83	FY82: TOTAL: \$363,320	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kraushaer, W. L.	GSFC/Sing, M. L.	11-Astronomy

NAS 5-25148 University of Wisconsin - Madison 5095
Technical support to the first GARP global experiment special effort

<i>Period</i>	<i>Obligations</i>	
08/18/78-04/17/81	FY82: TOTAL: \$372,105	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci

NAS 5-26142 University of Wisconsin - Madison 5102
Partially scanned interferometer sounding technique

<i>Period</i>	<i>Obligations</i>	
06/26/80-06/26/81	FY82: TOTAL: \$71,103	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Smith, W. L.	GSFC/Hurley, E. J.	31-Atmos Sci

NAS 5-25377 University of Wisconsin - Madison 5096
A study on the meteorological significance of cloud tracked winds during data systems test 5 and 6

<i>Period</i>	<i>Obligations</i>	
12/27/78-09/30/81	FY82: TOTAL: \$28,160	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci
	GSFC/Baker, W.	

NAS 5-26345 University of Wisconsin - Madison 5103
Study climate observing system requirements and capability assessments

<i>Period</i>	<i>Obligations</i>	
09/25/80-06/24/83	FY82: TOTAL: \$39,946	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Thiele, O. W.	39-Env Sci, NEC

NAS 5-25487 University of Wisconsin - Madison 5097
Support to the space telescope wide field planetary camera development team

<i>Period</i>	<i>Obligations</i>	
02/01/79-10/31/82	FY82: \$34,609 TOTAL: \$105,714	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Code, A. D.	GSFC/Fellerman, K.	11-Astronomy

NAS 5-26423 University of Wisconsin - Madison 5104
Wisconsin remote sensing applications project

<i>Period</i>	<i>Obligations</i>	
01/01/81-07/31/82	FY82: TOTAL: \$35,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Scarpace, F. L.	GSFC/Middleton, E. M.	39-Env Sci, NEC

NAS 5-25714 University of Wisconsin - Madison 5098
Support of high resolution spectrograph (HRS)

<i>Period</i>	<i>Obligations</i>	
05/16/79-03/15/84	FY82: \$25,000 TOTAL: \$137,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Savage, B. C.	GSFC/Vitagliano, H. D.	11-Astronomy

NAS 5-26454 University of Wisconsin - Madison 5105
Continued operation of a biomedical applications team

<i>Period</i>	<i>Obligations</i>	
01/26/81-12/31/81	FY82: TOTAL: \$50,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Sieband, M. P. Fetzner, W. N.	GSFC/Friedman, D. S.	56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NAS 5-26540 University of Wisconsin - Madison 5106
First GARP global experiment special effort program

<i>Period</i>	<i>Obligations</i>	
04/07/81-05/06/82	FY82: TOTAL: \$85,869	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci
	GSFC/Atlas, R. M.	

NAS 9-15580 University of Wisconsin - Madison 5113
Vitamin D metabolites and bone demineralization

<i>Period</i>	<i>Obligations</i>	
04/01/78-12/01/82	FY82: \$45,500 TOTAL: \$260,342	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Schnoes, H. K.	JSC/Cintron-trevino, N.	56-Medical Sciences

NAS 5-26777 University of Wisconsin - Madison 5107
Development phase of the Wisconsin ultraviolet photo polarimeter experiment (WUPPE)

<i>Period</i>	<i>Obligations</i>	
09/04/81-12/31/85	FY82: TOTAL: \$678,760	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Code, A. D.	GSFC/Young, E.	11-Astronomy
Nordsieck, K.		

NASW 3476 University of Wisconsin - Madison 5114
Development of a centralized storm information system (CSIS) at the national weather service storms center

<i>Period</i>	<i>Obligations</i>	
04/19/81-04/30/83	FY82: \$845,039 TOTAL: \$1,845,039	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suoni, V. E.	HQ-EB/Dodge, J. C.	31-Atmos Sci
	HQ-EB/Tilford, S. G.	

NAS 5-27320 University of Wisconsin - Madison 5108
MLA bidirectional reflectance and atmospheric effects experiment

<i>Period</i>	<i>Obligations</i>	
07/26/82-12/26/82	FY82: \$21,361 TOTAL: \$21,361	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Eloranta, E. W.	GSFC/Brakke, T.	31-Atmos Sci

NCC 2-136 University of Wisconsin - Madison 5115
Controlled environment injuries to plants

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$55,394 TOTAL: \$118,578	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Tibbitts, T. W.	ARC/Zill, L. P.	55-Agriculture Sci

NAS 8-33222 University of Wisconsin - Madison 5109
Diagnostics of severe convection and sub-synoptic scale ageostrophic circulations

<i>Period</i>	<i>Obligations</i>	
06/01/79-09/14/83	FY82: \$98,871 TOTAL: \$247,359	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Johnson, D. R.	MSFC/Turner, R. E.	31-Atmos Sci

NGL 50-002-013 University of Wisconsin - Madison 5116
Investigations and studies of ultraviolet stellar spectra and associated instrumentation

<i>Period</i>	<i>Obligations</i>	
05/20/64-11/30/82	FY82: TOTAL: \$2,861,490	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Code, A. D.	GSFC/Early, L. J.	11-Astronomy

NAS 8-33799 University of Wisconsin - Madison 5110
Application of the AVE-SESAME data set to mesoscale studies

<i>Period</i>	<i>Obligations</i>	
05/13/80-08/30/83	FY82: \$77,995 TOTAL: \$229,604	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suchman, D.	MSFC/Wilson, G. S.	31-Atmos Sci
Wash, C. H.	MSFC/Arnold, J. E.	

NGL 50-002-044 University of Wisconsin - Madison 5117
Research in cosmic and solar physics

<i>Period</i>	<i>Obligations</i>	
10/25/65-12/31/84	FY82: \$180,000 TOTAL: \$2,892,626	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kraushaar, W. L.	GSFC/Early, L. J.	11-Astronomy
Sanders, W. T.		
McCammon, D.		

NAS 8-34557 University of Wisconsin - Madison 5111
Mcidas enhancement package version II-B

<i>Period</i>	<i>Obligations</i>	
09/24/81-03/02/82	FY82: TOTAL: \$15,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Fox, R.	MSFC/Turner, R. E.	31-Atmos Sci
	MSFC/Wilson, G.	

NGL 50-002-127 University of Wisconsin - Madison 5118
Multidisciplinary research in space science and engineering

<i>Period</i>	<i>Obligations</i>	
12/19/69-12/31/81	FY82: TOTAL: \$1,737,000	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Kiefer, R. W.	HQ-ET/Vitale, J. A.	39-Env Sci, NEC

NAS 8-34732 University of Wisconsin - Madison 5112
Cooperative visible infrared spin scan radiometer atmospheric sounder

<i>Period</i>	<i>Obligations</i>	
07/29/82-07/28/83	FY82: \$22,637 TOTAL: \$22,637	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Suomi, V. E.	MSFC/Wilson, G. S.	31-Atmos Sci
Menzel, P.	MSFC/Arnold, J. E.	

NGR 50-002-051 University of Wisconsin - Madison 5119
Applications of the direct photon absorption techniques for measuring bone-mineral content

<i>Period</i>	<i>Obligations</i>	
10/01/81-01/31/82	FY82: \$14,025 TOTAL: \$697,294	
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Mazess, R. B.	ARC/Young, D. R.	56-Medical Sciences
Cameron, J. R.		

**NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)**

NGR 50-002-162 University of Wisconsin - Madison 5120
Solar wind physics
Period *Obligations*
01/26/71-06/30/83 FY82: \$7,467 TOTAL: \$426,930
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scherb, F. HQ-EE/Lynch, J. T. 13-Physics
HQ-EE/Schmerling, E. R.

NGR 50-002-189 University of Wisconsin - Madison 5121
Cloud image processing for planetary flybys
Period *Obligations*
01/19/72-12/31/82 FY82: \$83,000 TOTAL: \$427,083
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suomi, V. E. HQ-EL/Brinton, H. C. 31-Atmos Sci

NGT 50-002-800 University of Wisconsin - Madison 5122
Graduate student researchers program
Period *Obligations*
09/01/82-08/31/83 FY82: \$13,000 TOTAL: \$13,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kiefer, R. W. HQ-LB/Carter, C. H. 49-Engr, NEC

NSG 2104 University of Wisconsin - Madison 5123
Viral etiology and epidemiology of respiratory infection in an isolated Antarctic station
Period *Obligations*
09/01/75-11/30/81 FY82: TOTAL: \$214,201
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dick, E. C. ARC/Mandel, A. D. 56-Medical Sciences

NSG 5152 University of Wisconsin - Madison 5124
Research of clouds and ice in the planetary scale circulation and in climate
Period *Obligations*
01/01/77-01/31/83 FY82: TOTAL: \$262,874
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kutzbach, J. E. GSFC/Halem, M. 31-Atmos Sci
Suomi, V. E.

NSG 5223 University of Wisconsin - Madison 5125
Research of the effect of synoptic scale processes in global circulation models modelling
Period *Obligations*
01/16/78-07/31/83 FY82: \$85,059 TOTAL: \$286,619
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herman, G. F. GSFC/Halem, M. 31-Atmos Sci

NSG 5252 University of Wisconsin - Madison 5126
Optimum employment of satellite
Period *Obligations*
03/15/78-12/31/81 FY82: TOTAL: \$123,995
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horn, L. H. GSFC/Halem, M. 31-Atmos Sci

NSG 5363 University of Wisconsin - Madison 5127
Studies of the ultraviolet spectra of astronomical sources
Period *Obligations*
06/01/79-07/31/81 FY82: TOTAL: \$158,377
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Code, A. D. GSFC/Boggess, A. 11-Astronomy
Savage, B. D.

NAG 2-160 University of Wisconsin - Milwaukee 5128
Turbulent transport modelling of shear flows around an aerodynamic wing
Period *Obligations*
06/01/82-05/31/83 FY82: \$7,772 TOTAL: \$7,772
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Amano, R. S. ARC/Viegas, J. R. 41-Aero Engr

NAG 5-209 University of Wisconsin - Milwaukee 5129
Hydro and biodynamics of the developing thermal front in Lake Michigan
Period *Obligations*
09/15/81-12/31/82 FY82: \$15,607 TOTAL: \$18,607
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mortimer, C. H. GSFC/Rao, D. B. 33-Oceanography

NAS 8-34506 Univ Wisconsin-Platteville 5130
Kinematic and dynamic analysis of deployable space structures
Period *Obligations*
09/03/81-07/02/82 FY82: TOTAL: \$12,737
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stoll, H. W. MSFC/Kiefling, L. A. 46-Mech Engr
MSFC/Jewell, R. E.

WYOMING

NAG 1-272 University of Wyoming 5131
Analysis of the stress state in an isopescu shear test specimen
Period *Obligations*
05/01/82-04/30/83 FY82: \$29,941 TOTAL: \$29,941
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, D. F. LARC/Dow, M. B. 41-Aero Engr
Coulter, B. A.

NAG 1-277 University of Wyoming 5132
Investigation of the relations between neat resin and advanced composite mechanical properties
Period *Obligations*
05/03/82-05/02/83 FY82: \$29,928 TOTAL: \$29,928
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, D. F. LARC/Johnston, N. J. 47-Materials Engr
Odom, E. M. LARC/Stein, B. A.

NAG 2-65 University of Wyoming 5133
Balloon-borne measurements of stratospheric condensation nuclei
Period *Obligations*
07/01/80-12/31/82 FY82: \$62,460 TOTAL: \$156,291
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosen, J. M. ARC/Toon, O. B. 31-Atmos Sci
Hofmann, D. J. ARC/Summers, A. L.

NAG 2-134 University of Wyoming 5134
The study of star formation and molecular cloud evolution using the Kuiper Airborne Observatory
Period *Obligations*
10/01/81-09/30/83 FY82: \$63,532 TOTAL: \$63,532
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thronson, H. A., Jr. ARC/Haughney, L. C. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
WYOMING (Continued)**

NAGW 174 University of Wyoming 5135
Magnetism and microcracks
Period *Obligations*
04/01/81-03/31/82 FY82: TOTAL: \$45,682
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shive, P. N. HQ-EL/Quaide, W. L. 32-Geological Sci
HQ-EL/French, B. M.

NAS 1-14931 University of Wyoming 5136
Stratospheric aerosol and gas experiment
Period *Obligations*
07/19/77-09/30/83 FY82: \$52,245 TOTAL: \$191,929
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NAS 1-15377 University of Wyoming 5137
Balloon-borne aerosol measurements: Ground truth for SAM II
Period *Obligations*
05/04/78-12/31/80 FY82: TOTAL: \$109,725
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hofmann, D. J. LARC/McMaster, L. R. 31-Atmos Sci
Rosen, J. M. LARC/McCormick, M. P.

NAS 1-16305 University of Wyoming 5138
Science support for Earth radiation budget satellite/stratospheric aerosol and gas experiment
Period *Obligations*
06/27/80-06/26/85 FY82: \$75,000 TOTAL: \$127,540
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pepin, T. J. LARC/McMaster, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NAS 1-16557 University of Wyoming 5139
Determination of stiffness reductions during fatigue of unnotched, angle-ply graphite/epoxy laminates
Period *Obligations*
01/12/81-08/02/82 FY82: TOTAL: \$23,650
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, D. F. LARC/O'Brien, T. K. 47-Materials Engr
Walrath, D. E. LARC/Roderick, G. L.

NAS 8-33150 University of Wyoming 5140
Atmospheric cloud physics laboratory ice forming experiment preliminary definition
Period *Obligations*
08/07/78-11/30/81 FY82: TOTAL: \$143,338
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vali, G. MSFC/Smith, R. E. 31-Atmos Sci
MSFC/Keller, V. W.

NCA 2-880201 University of Wyoming 5141
An experimental model for biological hydrophobic interactions
Period *Obligations*
09/01/82-08/31/84 FY82: \$13,484 TOTAL: \$13,484
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Middaugh, C. ARC/MacElroy, D. 51-Biological Sci

NSG 3217 University of Wyoming 5142
Energy absorption mechanisms during crack propagation in metal matrix composites
Period *Obligations*
08/01/78-10/29/82 FY82: TOTAL: \$143,810
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, D. F. LERC/Dicarlo, J. A. 47-Materials Engr
LERC/Grimes, H. H.

PUERTO RICO

NAGW 198 University of Puerto Rico - Mayaguez 5143
Study of seawater corrosion rate of zinc diffusion protected aluminum surface
Period *Obligations*
05/01/81-04/15/82 FY82: \$119,500 TOTAL: \$377,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sasscer, D. S. HQ-LG/Goldberg, S. R.
HQ-RE/Del Gobbo, J. 47-Materials Engr

NAS 5-25844 University of Puerto Rico - Mayaguez 5144
Computerized safety information system for GSFC's health and safety engineering office
Period *Obligations*
07/05/79-12/14/80 FY82: TOTAL: \$15,324
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cabassa, H. D. GSFC/Marcus, C. H. 49-Engr, NEC

NAS 9-16549 University of Puerto Rico - Mayaguez 5145
Analysis of fluid dynamic and thermodynamics problems pertaining to cryogenic fluid management in low gravity environments
Period *Obligations*
04/08/82-07/01/82 FY82: \$10,700 TOTAL: \$10,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rios, J. JSC/Simon, W. E. 43-Chem Engr

AUSTRALIA

NAGW 267 University of New South Wales 5146
High voltage, high efficiency silicon solar cells
Period *Obligations*
12/01/81-11/30/82 FY82: \$56,800 TOTAL: \$56,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Green, M. A. LERC/Weizer, V. G. 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM
CANADA**

CANADA

NCA 2-103101 **Carleton University** **5147**
An investigation of the effects of selected communications media
on the performance of separated work teams
Period *Obligations*
09/01/81-08/31/83 FY82: TOTAL: \$9,259
Prin. Invest. *NASA Tech. Officer* *CASE Category*
George, D. A. ARC/Connors, M. M. 29-Math/Cmputer,NEC

NSG 7409 **University of Toronto** **5148**
Application of the cubic strength criterion to the failure analysis
of composite structures
Period *Obligations*
03/01/78-08/31/83 FY82: \$25,000 TOTAL: \$72,320
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schweikhard, W. G. LARC/Baker, D. J. 47-Materials Engr
Yechout, T. R. LARC/Poe, C. C., Jr.

NSG 7647 **University of Toronto** **5149**
Electron beam charging and arc discharging of spacecraft
insulating materials
Period *Obligations*
10/01/79-04/31/83 FY82: \$113,650 TOTAL: \$225,522
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Balmain, K. G. LERC/Staskus, J. V. 45-Elec Engr
LERC/Stevens, N. J.

NAGW 130 **University of Waterloo** **5150**
Non-linear supersonic/hypersonic aerodynamic stability at high
angles of attacks
Period *Obligations*
10/01/80-09/30/81 FY82: TOTAL: \$16,885
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hui, W. H. ARC/Chapman, G. T. 41-Aero Engr
ARC/Tobak, M.

CHILE

NAS 5-1925 **University of Chile** **5151**
Maintenance and operation of minitrack facilities
Period *Obligations*
09/21/62-10/31/81 FY82: \$7,773,889 TOTAL: \$54,690,865
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Diaz, E. GSFC/Force, C. A. 99-Multi-Discip
GSFC/Spintman, D.

GREAT BRITAIN

NASW 3435 Imperial College of Science & Technology 5152

A three dimensional 's' duct benchmark experiment
Period *Obligations*
12/16/80-01/16/82 FY82: TOTAL: \$88,596
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rackham, O. LERC/Povinelli, L. A. 99-Multi-Discip

NASW 3631 Imperial College of Science & Technology 5153

3d s-diffuser benchmark experiments
Period *Obligations*
07/16/82-10/01/83 FY82: \$99,906 TOTAL: \$99,906
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Whitelaw, R. LERC/Hingst, W. 39-Env Sci, NEC

NCCW 3 University of Manchester 5154

Further analyses of wind tunnel test, data on ogive cylinder
bodies at high angles of attack
Period *Obligations*
06/15/82-06/14/83 FY82: \$10,835 TOTAL: \$10,835
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lamont, P. J. ARC/Malcolm, G. N. 41-Aero Engr

NCCW 2 University of Wales 5155

Computer program for buckling of stiffened composite panels
with shear loading
Period *Obligations*
10/01/81-09/30/82 FY82: \$23,000 TOTAL: \$23,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, F. W. LARC/Stroud, W. J. 41-Aero Engr
LARC/Anderson, M. S.

NSG 7517 University of Sheffield 5156

Vaporization of droplets in premixing chambers
Period *Obligations*
10/01/78-09/30/81 FY82: TOTAL: \$160,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chigier, N. A. LERC/Lyons, V. J. 43-Chem Engr
Yule, A. J.

NSG 7172 University of Southampton 5157

Self-streamlining of the test section of a transonic wind tunnel
Period *Obligations*
10/01/75-12/31/82 FY82: \$40,000 TOTAL: \$318,026
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodyer, M. J. LARC/Ladson, C. L. 41-Aero Engr
LARC/Plentovich, E. B.

NSG 7523 University of Southampton 5158

Investigations into the technology required to raise reliability
levels of magnetic suspension system
Period *Obligations*
01/01/79-10/31/82 FY82: \$52,180 TOTAL: \$209,140
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodyer, M. J. LARC/Boyden, R. P. 41-Aero Engr
LARC/Kilgore, R. A.

**NASA'S UNIVERSITY PROGRAM
ISRAEL**

ISRAEL

NAGW 218 **Israel Institute of Technology** **5159**
Calculation of high angle of attack stability deviates for wings in
unsteady motion as in unsteady motion

<i>Period</i>	<i>Obligations</i>	
05/01/81-04/30/83	FY82: \$23,500	TOTAL: \$38,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Katz, J.	ARC/Schiff, L. B.	41-Aero Engr
	ARC/Maloolm, G. N.	

NAGW 327 **Israel Institute of Technology** **5160**
A study of bubbly lubricating films

<i>Period</i>	<i>Obligations</i>	
06/01/82-05/31/83	FY82: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Etsion, I.	LERC/Hendricks, R. C.	46-Mech Engr
Haber, S.		

ITALY

NASW 2135 **University of Rome** **5161**
Back-up data acquisition

<i>Period</i>	<i>Obligations</i>	
10/21/71-06/30/81	FY82: \$193,150	TOTAL: \$1,032,183
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Taylor, C. A.	HQ-TN/Lacurto, J.	11-Astronomy

NASA'S UNIVERSITY PROGRAM

APPENDIX

CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

The Fields used here are specified by Amendment J, "Standard Classification of Fields of Science and Engineering," to Office of Management and Budget (OMB) Circular A-46, "Standards for Statistical Surveys." Field codes are interpreted as follows:

PHYSICAL SCIENCES

- 11 ASTRONOMY
- 12 CHEMISTRY
- 13 PHYSICS
- 19 PHYSICAL SCIENCES, NEC*

ENVIRONMENTAL SCIENCES (Terrestrial and extraterrestrial)

- 31 ATMOSPHERIC SCIENCES
- 32 GEOLOGICAL SCIENCES
- 33 OCEANOGRAPHY
- 39 ENVIRONMENTAL SCIENCES, NEC*

LIFE SCIENCES

- 51 BIOLOGICAL SCIENCES
- 54 ENVIRONMENTAL BIOLOGY
- 55 AGRICULTURAL SCIENCES
- 56 MEDICAL SCIENCES
- 59 LIFE SCIENCES, NEC*

SOCIAL SCIENCES

- 71 ANTHROPOLOGY
- 72 ECONOMICS
- 73 HISTORY
- 74 LINGUISTICS
- 75 POLITICAL SCIENCE
- 76 SOCIOLOGY
- 79 SOCIAL SCIENCE, NEC*

MATHEMATICAL/ COMP SCI

- 21 MATHEMATICS
- 22 COMPUTER SCIENCES
- 29 MATHEMATICAL COMPUTER SCIENCES, NEC*

ENGINEERING

- 41 AERONAUTICAL
- 42 ASTRONAUTICAL
- 43 CHEMICAL
- 44 CIVIL
- 45 ELECTRICAL
- 46 MECHANICAL
- 47 METALLURGY AND MATERIALS
- 49 ENGINEERING, NEC*

PSYCHOLOGY

- 61 BIOLOGICAL
- 62 SOCIAL ASPECTS
- 69 PSYCHOLOGY, NEC*

OTHER SCIENCES**

- 99 ALL DISCIPLINE(S)

*Not Elsewhere Classified (For interdisciplinary projects and others not listed by discipline name)

**For interdisciplinary projects which cannot be classified within any of the preceding main fields

Abbreviations used in the "Technical Officer Locations" column are discussed in the prefatory pages.

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	AMHERST COLLEGE	Jones, J. B.	MSFC	Greenstein, G.	NAG 8-330	2968
11	BAYLOR UNIVERSITY	Brunk, W. E.	HQ-EL	Alexander, W. M.	NASW 3577	4401
11	BELOIT COLLEGE	O'dell, C. R.	MSFC	Schroeder, D. J.	NAS 8-32901	5061
11	BOSTON COLLEGE	Wales, R. O.	GSFC	Saflekos, N. A.	NAG 5-227	2970
11	BOSTON UNIVERSITY	Wales, R. O.	GSFC	Hughes, W. J.	NAG 5-237	2975
11	BOSTON UNIVERSITY	Salmonson, V.	GSFC	Hughes, W. J.	NSG 5407	2988
11	BOSTON UNIVERSITY	Stone, J. F.	MSFC	Marscher, A. P.	NAG 8-435	2976
11	BOWIE STATE COLLEGE	Kniffen, D. A.	GSFC	Walker, R. P.	NGR 21-027-001	2795
11	BOWLING GRN STATE U	Kondo, Y.	GSFC	Gregory, S. A.	NAG 5-259	3887
11	BRANDEIS UNIVERSITY	Stone, J. F.	MSFC	Wardle, J. F.	NAG 8-413	2989
11	BRANDEIS UNIVERSITY	Stone, J. F.	MSFC	Ghigo, F. D.	NAS 8-33343	2990
11	BRIGHAM YOUNG UNIV	Bogges, A.	GSFC	McNamara, D. H.	NAG 5-62	4682
11	CALIF INST OF TECH	Haughney, L. C.	ARC	Phillips, T. G.	NAG 2-1	1236
11	CALIF INST OF TECH	Werner, M. W.	ARC	Leighton, R. B.	NAG 2-125	1237
11	CALIF INST OF TECH	Fimmel, R. O.	ARC	Ingersoll, A. P.	NAS 2-6556	1267
11	CALIF INST OF TECH	Werner, M. W.	ARC	Soifer, B. T.	NCA 2-90101	1277
11	CALIF INST OF TECH	Werner, M. W.	ARC	Neugebauer, G.	NCA 2-90201	1278
11	CALIF INST OF TECH	Kondo, Y.	GSFC	Sargent, W. L.	NAG 5-4	1241
11	CALIF INST OF TECH	Bogges, A.	GSFC	Soifer, B. T.	NAG 5-47	1242
11	CALIF INST OF TECH	Kondo, Y.	GSFC	Trauger, J. T.	NAG 5-66	1243
11	CALIF INST OF TECH	Kondo, Y.	GSFC	Cohen, J. G.	NAG 5-68	1244
11	CALIF INST OF TECH	Kondo, Y.	GSFC	Oke, J. B.	NAG 5-250	1245
11	CALIF INST OF TECH	White, R. A.	GSFC	Westphal, J.	NAS 5-25451	1271
11	CALIF INST OF TECH	Wales, R. O.	GSFC	Stone, E. C.	NAS 5-25789	1272
11	CALIF INST OF TECH	Guidotti, J.	GSFC	Garmire, G. P.	NGR 05-002-284	1291
11	CALIF INST OF TECH	Bogges, A.	GSFC	Oke, J. B.	NSG 5243	1296
11	CALIF INST OF TECH	Bogges, A.	GSFC	Greenstein, J. L.	NSG 5381	1299
11	CALIF INST OF TECH	Bogges, A.	GSFC	Meier, D. L.	NSG 5384	1300
11	CALIF INST OF TECH	Jones, J. B.	MSFC	Garmire, G. P.	NAG 8-324	1246
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Garmine, G. P.	NAG 8-374	1247
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Pravdo, S. H.	NAG 8-376	1248
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Sargent, W. L.	NAG 8-406	1249

APPENDIX

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APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Prince, T. A.	NAG 8-412	1250
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Moore, R. L.	NAG 8-430	1251
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Zirin, H.	NAG 8-438	1252
11	CALIF INST OF TECH	Stone, J. F.	MSFC	Stone, E. C.	NAS 8-27978	1275
11	CALIF INST OF TECH	Brunk, W. E.	HQ-EL	Muhleman, D. O.	NGL 05-002-003	1280
11	CALIF INST OF TECH	Brunk, W. E.	HQ-EL	Soifer, B. T.	NGL 05-002-140	1284
11	CALIF INST OF TECH	Brunk, W. E.	HQ-EL	Muhleman, D. O.	NGR 05-002-114	1289
11	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Neugebauer, M. G.	NSG 7635	1306
11	CALIF INST OF TECH	Boggess, N. W.	HQ-EZ	Phillips, T. G.	NAGW 107	1254
11	CALIF INST OF TECH	Chipman, E.	HQ-EZ	Zirin, H.	NGL 05-002-034	1281
11	CALIF INST OF TECH	Weiler, E. J.	HQ-EZ	Oke, J. B.	NGL 05-002-134	1283
11	CALIF INST OF TECH	Boggess, N. W.	HQ-EZ	Neugebauer, G.	NGL 05-002-207	1287
11	CALIF INST OF TECH	Opp, A. G.	HQ-EZ	Vogt, R. E.	NGR 05-002-160	1290
11	CASE WESTERN RESERVE	Kondo, Y.	GSFC	Shore, S. N.	NAG 5-179	3934
11	CASE WESTERN RESERVE	Kaluzienski, L. J.	HQ-EZ	Frye, G. M.	NASW 3623	3941
11	CITADEL MLTRY CO S C	Boggess, A.	GSFC	Adelman, S. J.	NAG 5-218	4335
11	CITADEL MLTRY CO S C	Boggess, A.	GSFC	Adelman, S. J.	NSG 5420	4336
11	CITY COLLEGE OF N Y	Black, D. C.	ARC	Yuan, C.	NSG 2348	3589
11	CITY COLLEGE OF N Y	Thaddeus, P.	GSFC	Arons, M.	NGL 33-013-040	3586
11	CLEMSON UNIV-CLEMSON	Kondo, Y.	GSFC	Baird, S. R.	NAG 5-238	4340
11	COLUMBIA UNIVERSITY	Eiband, A. M.	GSFC	Novick, R.	NAS 5-24457	3611
11	COLUMBIA UNIVERSITY	Sing, M.	GSFC	Novick, R.	NAS 5-26041	3613
11	COLUMBIA UNIVERSITY	Early, L. J.	GSFC	Novick, R.	NGR 33-008-102	3626
11	COLUMBIA UNIVERSITY	Stone, J. F.	MSFC	Morris, M.	NAG 8-425	3606
11	COLUMBIA UNIVERSITY	Stone, J. F.	MSFC	Novick, R.	NAS 8-30753	3617
11	COLUMBIA UNIVERSITY	Kaluzienski, L. J.	HQ-EZ	Novick, R.	NAGW 18	3607
11	COLUMBIA UNIVERSITY	Boggess, N. W.	HQ-EZ	Flynn, G.	NSG 7105	3629
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Houck, J. R.	NGR 33-010-081	3663
11	CORNELL UNIVERSITY	Mason, R. H.	ARC	Harwit, M. O.	NGR 33-010-146	3666
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Harwit, M.	NSG 2347	3671
11	CORNELL UNIVERSITY	Haughney, L. C.	ARC	Beckwith, S.	NSG 2412	3675
11	CORNELL UNIVERSITY	Lynch, J. T.	HQ-EE	Farley, D. T.	NGR 33-010-161	3667
11	CORNELL UNIVERSITY	Brunk, W. E.	HQ-EL	Ostro, S. J.	NAGW 116	3648
11	CORNELL UNIVERSITY	Boggess, N. W.	HQ-EZ	Houck, J. R.	NSG 7324	3678
11	DARTMOUTH COLLEGE	Stone, J. F.	MSFC	Mook, D. E.	NAG 8-305	3463
11	DREXEL UNIVERSITY	Maguire, W. C.	GSFC	Abbas, M. M.	NAG 5-208	4190
11	DUKE UNIVERSITY	Boggess, N. W.	HQ-EZ	Herbst, E.	NAGW 189	3841
11	ELMHURST COLLEGE	Stone, J. F.	MSFC	Morrison, J. P.	NAG 8-427	2437
11	EVERGREEN STATE COL	Sparks, W. M.	GSFC	Kutter, G. S.	NAG 5-187	4981
11	FLORIDA STATE UNIV	Brunk, W. E.	HQ-EL	Hunt, R. H.	NGR 10-004-056	2254
11	GEORGE MASON UNIV	Michalitsianos, A. G.	GSFC	Kafatos, M.	NAG 5-124	4753
11	GEORGE MASON UNIV	Hobbs, R. W.	GSFC	Kafatos, M.	NCA 5-92	4757
11	GEORGE MASON UNIV	Boggess, A.	GSFC	Kafatos, M.	NSG 5371	4758
11	GEORGIA STATE UNIV	Kondo, Y.	GSFC	Miller, H. R.	NAG 5-242	2385
11	HARVARD UNIVERSITY	Boggess, A.	GSFC	Grindlay, J. E.	NAG 5-72	2994
11	HARVARD UNIVERSITY	Kondo, Y.	GSFC	Geller, M. J.	NAG 5-189	2996
11	HARVARD UNIVERSITY	Jones, J. B.	MSFC	Rosner, R.	NAG 8-302	2997
11	HARVARD UNIVERSITY	Jones, J. B.	MSFC	Dupree, A. K.	NAG 8-344	2998
11	HARVARD UNIVERSITY	Stone, J. F.	MSFC	Rosner, R.	NAG 8-445	2999
11	HARVARD UNIVERSITY	Chandra, S.	HQ-EE	McElroy, M. B.	NAGW 359	3003
11	HARVARD UNIVERSITY	Bohlin, J. D.	HQ-EZ	Parkinson, W. H.	NGR 22-007-202	3020
11	HARVARD UNIVERSITY	Kaluzienski, L. J.	HQ-EZ	Cameron, A. G.	NGR 22-007-272	3022
11	HOUSTON BAPTIST UNIV	Potter, A. E.	JSC	Morgan, T. H.	NSG 9038	4422
11	HOWARD UNIVERSITY	Haughney, L. C.	ARC	Richard, L. J.	NAG 2-78	2204
11	HOWARD UNIVERSITY	Boggess, A.	GSFC	Jackson, W. M.	NAG 5-65	2208
11	HOWARD UNIVERSITY	Stone, J. F.	MSFC	Kumar, C. K.	NAG 8-371	2215
11	HOWARD UNIVERSITY	Stone, J. F.	MSFC	Kumar, C. K.	NAG 8-395	2216
11	HOWARD UNIVERSITY	Carter, C. H.	HQ-LB	Jackson, W.	NGT 09-011-800	2227
11	INDIANA U-BLOOMINGTN	Cuzzi, J. N.	ARC	Weber, N. V.	NCA 2-335101	2560
11	INDIANA U-BLOOMINGTN	Kondo, Y.	GSFC	Johnson, H. R.	NAG 5-182	2549

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	INDIANA U-BLOOMINGTN	Kondo, Y.	GSFC	Kondo, Y.	NAG 5-198	2550
11	INDIANA U-BLOOMINGTN	Hobbs, R. W.	GSFC	Burkhead, M. S.	NAS 5-22987	2557
11	INDIANA U-BLOOMINGTN	Stone, J. F.	MSFC	Mufson, S. L.	NAG 8-331	2551
11	INDIANA U-BLOOMINGTN	Stone, J. F.	MSFC	Durisen, R. H.	NAG 8-362	2552
11	INDIANA U-BLOOMINGTN	Stone, J. F.	MSFC	Mufson, S. L.	NAG 8-365	2553
11	INDIANA U-BLOOMINGTN	Stone, J. F.	MSFC	Mufson, S. L.	NAG 8-396	2554
11	INDIANA U-BLOOMINGTN	Dailey, C. C.	MSFC	Mufson, S. L.	NAS 8-33087	2558
11	INDIANA U-BLOOMINGTN	Brunk, W. E.	HQ-EL	Edmondson, F. K.	NAGW 98	2556
11	IOWA STATE UNIV	Black, D. C.	ARC	Russell, J. L.	NAG 2-113	2622
11	IOWA STATE UNIV	Boggess, A.	GSFC	Beavers, W. I.	NAG 5-172	2626
11	IOWA STATE UNIV	Jones, T. B.	MSFC	Lamb, R. C.	NAG 8-338	2627
11	IOWA STATE UNIV	Stone, J. F.	MSFC	Lamb, R. C.	NAG 8-360	2628
11	IOWA STATE UNIV	Stone, J. F.	MSFC	Lamb, R. C.	NAG 8-426	2629
11	IOWA STATE UNIV	Jones, J. B., Jr.	MSFC	Lamb, R. C.	NAS 8-33334	2630
11	JOHNS HOPKINS UNIV	Young, E. W.	GSFC	Davidson, A. F.	NAS 5-26057	2813
11	JOHNS HOPKINS UNIV	Young, E.	GSFC	Davidson, A. F.	NAS 5-27000	2814
11	JOHNS HOPKINS UNIV	Early, L. J.	GSFC	Feldman, P. D.	NGR 21-001-001	2820
11	JOHNS HOPKINS UNIV	Kondo, Y.	GSFC	Moos, H. W.	NSG 5393	2826
11	JOHNS HOPKINS UNIV	O'dell, C. R.	MSFC	Fastie, W. G.	NAS 8-32903	2816
11	JOHNS HOPKINS UNIV	Weiler, E. J.	HQ-EZ	Moos, H. W.	NAGW 16	2807
11	LEHIGH UNIVERSITY	Kondo, Y.	GSFC	McCluskey, G. E.	NSG 5386	4217
11	LEHIGH UNIVERSITY	Swearingen, J. C.	MSFC	McCluskey, G. E.	NAG 8-355	4208
11	LA ST U&A&M COL-BRGE	Sofia, S.	GSFC	Endal, A. S.	NAG 5-13	2767
11	LA ST U&A&M COL-BRGE	Kondo, Y.	GSFC	Drilling, J. S.	NAG 5-71	2768
11	LA ST U&A&M COL-BRGE	Kondo, Y.	GSFC	Bond, H. E.	NAG 5-197	2769
11	MASS INST OF TECH	Black, D. C.	ARC	Staelin, D. H.	NAG 2-50	3047
11	MASS INST OF TECH	Fimmel, R. O.	ARC	Pettingill, G. H.	NAS 2-9473	3102
11	MASS INST OF TECH	Fimmel, R. O.	ARC	Shapiro, I. I.	NAS 2-9483	3103
11	MASS INST OF TECH	Haughney, L. C.	ARC	Elliot, J. L.	NSG 2342	3161
11	MASS INST OF TECH	Boggess, A.	GSFC	McClintock, J. E.	NAG 5-43	3076
11	MASS INST OF TECH	Kouns, C. W.	GSFC	Molnar, P.	NAG 5-149	3083
11	MASS INST OF TECH	Boggess, A.	GSFC	Kallman, T. R.	NAG 5-170	3084
11	MASS INST OF TECH	Kondo, Y.	GSFC	Cowie, L. L.	NAG 5-192	3085
11	MASS INST OF TECH	Kondo, Y.	GSFC	Tremaine, S. D.	NAG 5-248	3086
11	MASS INST OF TECH	Bullock, G.	GSFC	Clark, G. W.	NAS 5-24441	3108
11	MASS INST OF TECH	Mather, J. C.	GSFC	Weiss, R. G.	NAS 5-24493	3109
11	MASS INST OF TECH	Wales, R. O.	GSFC	Bridge, H. S.	NAS 5-25790	3110
11	MASS INST OF TECH	Early, L. J.	GSFC	Rappaport, S. A.	NGR 22-009-730	3147
11	MASS INST OF TECH	Stone, J. F.	MSFC	Bradt, H. V.	NAS 8-27972	3116
11	MASS INST OF TECH	Stone, J. F.	MSFC	Lewin, W. H.	NAS 8-27975	3117
11	MASS INST OF TECH	Stone, J. F.	MSFC	Clark, G. W.	NAS 8-30752	3118
11	MASS INST OF TECH	Morgan, S. H.	MSFC	Burke, B. F.	NAS 8-34545	3122
11	MASS INST OF TECH	Brunk, W. E.	HQ-EL	Taff, L. G.	NAGW 232	3098
11	MASS INST OF TECH	Brunk, W. E.	HQ-EL	Pettengill, G. H.	NGR 22-009-672	3145
11	MASS INST OF TECH	Brunk, W. E.	HQ-EL	Elliot, J. L.	NSG 7526	3178
11	MASS INST OF TECH	Brunk, W. E.	HQ-EL	Shapiro, I. I.	NSG 7556	3179
11	MASS INST OF TECH	Kaluzienski, L. J.	HQ-EZ	Ricker, G. R.	NAGW 14	3090
11	MASS INST OF TECH	Weiler, E. J.	HQ-EZ	Cowie, L. L.	NAGW 208	3096
11	MASS INST OF TECH	Boggess, N. W.	HQ-EZ	Weiss, R.	NGR 22-009-526	3143
11	MASS INST OF TECH	Boggess, N. W.	HQ-EZ	Kleinmann, S.	NSG 7186	3174
11	MASS INST OF TECH	Kaluzienski, L. J.	HQ-EZ	Ricker, G. R.	NSG 7339	3177
11	MASS INST OF TECH	Kaluzienski, L. J.	HQ-EZ	Clark, G.	NSG 7643	3182
11	MIDDLEBURY COLLEGE	Stone, J. F.	MSFC	Winkler, P. F., Jr.	NAG 8-389	4727
11	MISSISSIPPI STATE U	Thomas, J. H.	MSFC	Ingels, F. M.	NAS 8-33570	3367
11	MORGAN STATE UNIV	Baker, G. R.	GSFC	Hammond, E. C., Jr.	NSG 5074	2832
11	MURRAY STATE U-KY	Scott, C. D.	JSC	Owen, D. A.	NAS 9-16254	2748
11	NEW MEX INST MINING	Caroff, L. J.	ARC	Eilek, J. A.	NCA 2-511101	3549
11	NEW MEX INST MINING	Michalitsianos, A.	GSFC	Donaruma, L. G.	NCA 5-71	3550
11	NEW MEX INST MINING	Stone, J. F.	MSFC	Gibson, D. M.	NAG 8-394	3547
11	NEW MEX ST U-LAS CR	Brunk, W. E.	HQ-EL	Beebe, R. F.	NGL 32-003-001	3563

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	NEW MEX ST U-LAS CR	Opp, A. G.	HQ-EZ	Golden, R. L.	NAGW 110	3551
11	NEW YORK UNIVERSITY	Kondo, Y.	GSFC	Glassgold, A. E.	NAG 5-73	3693
11	NEW YORK UNIVERSITY	Boggess, A.	GSFC	Glassgold, A. E.	NAG 5-122	3694
11	NEW YORK UNIVERSITY	Jones, J. B.	MSFC	Glassgold, A. E.	NAG 8-337	3695
11	NEW YORK UNIVERSITY	Jones, J. B.	MSFC	Huggins, P. J.	NAG 8-343	3696
11	NEW YORK UNIVERSITY	Swearingen, J. C.	MSFC	Glassgold, A. E.	NAG 8-358	3697
11	NEW YORK UNIVERSITY	Stone, J. F.	MSFC	Glassgold, A. E.	NAG 8-393	3698
11	NEW YORK UNIVERSITY	Boggess, N. W.	HQ-EZ	Glassgold, A. E.	NAGW 194	3699
11	NORTHWESTERN UNIV	Early, L. J.	GSFC	Ulmer, M. P.	NAG 5-181	2450
11	NORTHWESTERN UNIV	Jones, J. B.	MSFC	Ulmer, M. P.	NAG 8-326	2451
11	NORTHWESTERN UNIV	Stone, J. F.	MSFC	Ulmer, M. P.	NAG 8-367	2452
11	NORTHWESTERN UNIV	Stone, J. F.	MSFC	Ulmer, M. P.	NAG 8-368	2453
11	NORTHWESTERN UNIV	Stone, J. F.	MSFC	Taam, R. E.	NAG 8-415	2454
11	NORTHWESTERN UNIV	Stone, J. F.	MSFC	Ulmer, M. P.	NAG 8-416	2455
11	NORTHWESTERN UNIV	Jones, J. B., Jr.	MSFC	Ulmer, M. P.	NAS 8-33010	2458
11	NORTHWESTERN UNIV	Weiler, E. J.	HQ-EZ	Huang, S. S.	NGL 14-007-041	2461
11	OHIO STATE UNIV	Boggess, A.	GSFC	Sletteback, A.	NAG 5-52	4005
11	OHIO STATE UNIV	Kondo, Y.	GSFC	Linsky, J. L.	NAG 5-266	4006
11	OHIO STATE UNIV	Wende, C.	GSFC	Slettebak, A. E.	NSG 5299	4035
11	OHIO STATE UNIV	Boggess, A.	GSFC	Wing, R. F.	NSG 5368	4036
11	PAN AMERICAN UNIV	Mendell, W.	JSC	Glaser, F. M.	NSG 9070	4425
11	PENN STATE U-UNIV PK	Boggess, A.	GSFC	Wegner, G. A.	NAG 5-60	4231
11	PENN STATE U-UNIV PK	Early, L. J.	GSFC	Garmire, G. P.	NAG 5-100	4233
11	PENN STATE U-UNIV PK	Boggess, A.	GSFC	Ramsey, L.	NAG 5-201	4235
11	PENN STATE U-UNIV PK	Boggess, A.	GSFC	Wegner, G. A.	NAG 5-214	4236
11	PENN STATE U-UNIV PK	Bullock, G.	GSFC	Garmire, G. P.	NAS 5-26809	4251
11	PENN STATE U-UNIV PK	Stone, J. F.	MSFC	Garmire, G. P.	NAG 8-434	4239
11	PENN STATE U-UNIV PK	Kallizienski, L. J.	HQ-EZ	Garmire, G.	NAGW 108	4240
11	PRINCETON UNIVERSITY	Kondo, Y.	GSFC	York, D. G.	NAG 5-48	3499
11	PRINCETON UNIVERSITY	Bullock, G. D.	GSFC	Spitzer, L., Jr.	NAS 5-23576	3510
11	PRINCETON UNIVERSITY	Mather, J. C.	GSFC	Wilkinson, D. T.	NAS 5-24486	3511
11	PRINCETON UNIVERSITY	White, R. A.	GSFC	Groth, E. J.	NAS 5-25084	3512
11	PRINCETON UNIVERSITY	Cyphers, H.	GSFC	Jenkins, E. B.	NAS 5-26268	3514
11	PRINCETON UNIVERSITY	Kondo, Y.	GSFC	Jenkins, E. B.	NSG 5248	3529
11	PRINCETON UNIVERSITY	Jones, J. B.	MSFC	Cowie, L. L.	NAG 8-306	3501
11	PRINCETON UNIVERSITY	Swearingen, J. C.	MSFC	Bahcall, N. A.	NAG 8-363	3502
11	PRINCETON UNIVERSITY	Stone, J. F.	MSFC	Behcall, N. A.	NAG 8-420	3503
11	PRINCETON UNIVERSITY	Weiler, E. J.	HQ-EZ	York, D.	NAGW 10	3504
11	PRINCETON UNIVERSITY	Weiler, E. J.	HQ-EZ	Spitzer, L., Jr.	NGL 31-001-007	3519
11	PRINCETON UNIVERSITY	Weiler, E. J.	HQ-EZ	Bahcall, N. A.	NSG 7256	3531
11	PRINCETON UNIVERSITY	Boggess, N. W.	HQ-EZ	Wilkinson, D.	NSG 7302	3533
11	PRINCETON UNIVERSITY	Weiler, E. J.	HQ-EZ	Jenkins, E. B.	NSG 7618	3536
11	RENSSELAER POLY-NY	Haughney, L. C.	ARC	Kutner, M. L.	NAG 2-198	3727
11	RICE UNIVERSITY	Kondo, Y.	GSFC	Dufour, R. J.	NAG 5-262	4435
11	RICE UNIVERSITY	Boggess, A.	GSFC	Dufour, R. J.	NSG 5364	4457
11	RICE UNIVERSITY	Parker, R. A.	JSC	Dufour, R. J.	NAS 9-16596	4447
11	RICE UNIVERSITY	Jones, J. B.	MSFC	Haymes, R. C.	NAS 8-33361	4443
11	RUTGERS U-N BRUNSWK	Kondo, Y.	GSFC	Matilsky, T.	NAG 5-70	3537
11	RUTGERS U-N BRUNSWK	Jones, J. B.	MSFC	Matilsky, T.	NAG 8-309	3538
11	RUTGERS U-N BRUNSWK	Jones, J. B.	MSFC	Cheng, A. F.	NAG 8-328	3539
11	SAN DIEGO STATE UNIV	Swearingen, J. C.	MSFC	Young, A.	NAG 8-356	1341
11	SAN DIEGO STATE UNIV	Boggess, N. W.	HQ-EZ	Lee, L.	NAGW 319	1345
11	SAN FRAN STATE UNIV	Stone, J. F.	MSFC	Lea, S.	NAG 8-385	1346
11	SAN FRAN STATE UNIV	Stone, J. F.	MSFC	Lea, S. M.	NAG 8-418	1347
11	STANFORD UNIVERSITY	Erickson, E. F.	ARC	Petrosian, V.	NCA 2-745203	1493
11	STANFORD UNIVERSITY	Werner, M. W.	ARC	Walker, A. B.	NCA 2-745207	1497
11	STANFORD UNIVERSITY	Corrigan, J. P.	GSFC	Helliwell, R. A.	NAG 5-120	1442
11	STANFORD UNIVERSITY	Kondo, Y.	GSFC	Walker, A. B.	NAG 5-202	1444
11	STANFORD UNIVERSITY	Skillman, D.	GSFC	Helliwell, R. A.	NAS 5-25688	1467
11	STANFORD UNIVERSITY	Wales, R. O.	GSFC	Helliwell, R. A.	NAS 5-25744	1468

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11	STANFORD UNIVERSITY	Campbell, C. E.	GSFC	Hofstadler, R.	NAS 5-26020	1469
11	STANFORD UNIVERSITY	Hartman, R. C.	GSFC	Hofstadter, R.	NAS 5-26682	1470
11	STANFORD UNIVERSITY	Boggess, A.	GSFC	Walker, A. B.	NSG 5417	1563
11	STANFORD UNIVERSITY	Chappett, C. R.	MSFC	Banks, P.	NAG 8-16	1448
11	STANFORD UNIVERSITY	Stone, J. F.	MSFC	Walker, A. B.	NAG 8-325	1449
11	STANFORD UNIVERSITY	Potter, R.	MSFC	Everitt, C. W.	NAS 8-34619	1476
11	STANFORD UNIVERSITY	Brinton, H. C.	HQ-EL	Eshelman, V. R.	NAGW 326	1459
11	STANFORD UNIVERSITY	Brunk, W. E.	HQ-EL	Tyler, G. L.	NSG 7395	1566
11	STANFORD UNIVERSITY	Brunk, W. E.	HQ-EL	Tyler, G. L.	NSG 7561	1568
11	STANFORD UNIVERSITY	Weiler, E. J.	HQ-EZ	Wagoner, R. V.	NAGW 299	1458
11	STANFORD UNIVERSITY	Kaluzienski, L. J.	HQ-EZ	Hofstadter, R.	NGR 05-020-452	1546
11	STANFORD UNIVERSITY	Chipman, E.	HQ-EZ	Wilcox, J. M.	NGR 05-020-559	1548
11	STANFORD UNIVERSITY	Kaluzienski, L. J.	HQ-EZ	Sturrock, P. A.	NGR 05-020-668	1551
11	STANFORD UNIVERSITY	Chipman, E.	HQ-EZ	Petrosian, V.	NSG 7092	1564
11	STANFORD UNIVERSITY	Weiler, E. J.	HQ-EZ	Will, C. M.	NSG 7204	1565
11	STANFORD UNIVERSITY	Carter, C. H.	HQ-LB	Walker, A. B., Jr.	NGT 05-020-803	1556
11	STATE UNIV NY-ALBANY	Weiler, E. J.	HQ-EZ	Weinberg, J. L.	NSG 7241	3771
11	ST U NY COL-GENESE	Corrigan, J. P.	GSFC	Meisel, D. D.	NAG 5-113	3821
11	STATE U NY-STONY BRK	Haughney, L. C.	ARC	Knacke, R.	NAG 2-56	3785
11	STATE U NY-STONY BRK	Kondo, Y.	GSFC	Caldwell, J.	NAG 5-275	3789
11	STATE U NY-STONY BRK	Boggess, A.	GSFC	Owen, T.	NSG 5250	3813
11	STATE U NY-STONY BRK	Stone, J. F.	MSFC	Simon, M.	NAG 8-388	3790
11	STATE U NY-STONY BRK	O'dell, C. R.	MSFC	Caldwell, J. J.	NAS 8-32904	3801
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-EL	Owen, T. C.	NGR 33-015-141	3808
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-EL	Knacke, R. F.	NSG 7286	3815
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-EL	Caldwell, J. J.	NSG 7320	3816
11	STATE U NY-STONY BRK	Kaluzienski, L. J.	HQ-EZ	Forman, M. A.	NGR 33-015-180	3809
11	UNIV ALA-HUNTSVILLE	Chappell, R.	MSFC	Horwitz, J.	NAG 8-18	1030
11	UNIV ALA-HUNTSVILLE	Weisskopf, M. C.	MSFC	Gregory, J. C.	NAS 8-33977	1053
11	UNIV ALA-HUNTSVILLE	Brunk, W. E.	HQ-EL	Smith, B. A.	NAGW 247	1032
11	UNIV ALA-UNIVERSITY	Carter, C. H.	HQ-LB	Desmet, D. J.	NGT 01-002-800	1078
11	UNIV ALASKA-FAIRBANKS	Corrigan, J. P.	GSFC	Lee, L. C.	NSG 5409	1089
11	UNIV OF ARIZONA	Black, D. C.	ARC	McMillan, R.	NAG 2-52	1126
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Thronson, H.	NAG 2-55	1127
11	UNIV OF ARIZONA	Werner, M. W.	ARC	Angel, J. R.	NAG 2-136	1130
11	UNIV OF ARIZONA	McCreight, C. R.	ARC	Low, F. J.	NAG 2-154	1132
11	UNIV OF ARIZONA	Hall, C. F.	ARC	Gehrels, A. M.	NAS 2-6265	1168
11	UNIV OF ARIZONA	McCreight, C. R.	ARC	Davidson, A.	NAS 2-10438	1169
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Larson, H. P.	NAS 2-10890	1170
11	UNIV OF ARIZONA	Erickson, E. F.	ARC	Thompson, R. I.	NCA 2-40101	1191
11	UNIV OF ARIZONA	Haughney, L. C.	ARC	Larson, H. P.	NGR 03-002-332	1189
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Green, R. F.	NAG 5-38	1136
11	UNIV OF ARIZONA	Boggess, A.	GSFC	Turnshek, D. A.	NAG 5-221	1139
11	UNIV OF ARIZONA	Kondo, Y.	GSFC	Puetter, R. C.	NAG 5-264	1140
11	UNIV OF ARIZONA	Vitagliano, H. D.	GSFC	Weymann, R. J.	NAS 5-25733	1173
11	UNIV OF ARIZONA	Schmadabeck, R.	GSFC	Beckers, J. M.	NAS 5-25955	1174
11	UNIV OF ARIZONA	Arens, J. F.	GSFC	Low, F. J.	NAS 5-26575	1176
11	UNIV OF ARIZONA	Boggess, A.	GSFC	Imhoff, C. L.	NSG 5235	1205
11	UNIV OF ARIZONA	Jones, J. B.	MSFC	Strittmatter, P. A.	NAG 8-321	1141
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Stoche, J. T.	NAG 8-370	1142
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Green, R.	NAG 8-380	1143
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Scott, J.	NAG 8-387	1144
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Tapia, S.	NAG 8-402	1145
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Liebert, J. W.	NAG 8-403	1146
11	UNIV OF ARIZONA	Stone, J. F.	MSFC	Stoche, J. T.	NAG 8-442	1147
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Hege, E. K.	NAGW 224	1158
11	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Sill, G.	NAGW 248	1160
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Wilkening, L. L.	NASW 3413	1185
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Gehrels, T.	NASW 3454	1186
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Hsieh, K. C.	NASW 3627	1187

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11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Gehrels, T.	NASW 3655	1188
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Smith, J. C.	NGL 03-002-002	1192
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Gehrels, T.	NGL 03-002-081	1193
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Gehrels, A. M.	NGR 03-002-219	1197
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Hubbard, W. B.	NSG 7045	1209
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Fink, U. W.	NSG 7070	1210
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Rieke, G. H.	NSG 7114	1212
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Zellner, B. H.	NSG 7502	1220
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Brown, R. A.	NSG 7634	1228
11	UNIV OF ARIZONA	Taylor, T.	HQ-EP	Angel, J. R.	NAGW 121	1150
11	UNIV OF ARIZONA	Kaluziński, L. J.	HQ-EZ	Scott, J. S.	NAGW 124	1151
11	UNIV OF ARIZONA	Boggess, N. B.	HQ-EZ	Low, F. J.	NGR 03-002-269	1198
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-EZ	Hoffman, W.	NGR 03-002-371	1201
11	UNIV OF ARIZONA	Kaluziński, L. J.	HQ-EZ	Jokipii, J. R.	NSG 7101	1211
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-EZ	Craine, E. R.	NSG 7368	1216
11	UNIV OF ARIZONA	Weiler, E. J.	HQ-EZ	Tapia, S. F.	NSG 7574	1224
11	UNIV CALIF-BERKELEY	Haughney, L. C.	ARC	McKee, C. F.	NAG 2-200	1571
11	UNIV CALIF-BERKELEY	Cuzzi, J. N.	ARC	Shu, F. H.	NCA 2-50102	1626
11	UNIV CALIF-BERKELEY	Erickson, E. F.	ARC	Heiles, C. E.	NCC 2-142	1639
11	UNIV CALIF-BERKELEY	Haughney, L. C.	ARC	Townes, C. H.	NGR 05-003-511	1655
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Kuhi, L.	NAG 5-55	1577
11	UNIV CALIF-BERKELEY	Kondo, Y.	GSFC	Bowyer, C. S.	NAG 5-69	1578
11	UNIV CALIF-BERKELEY	Corrigan, J. P.	GSFC	Bowyer, C. S.	NAG 5-117	1580
11	UNIV CALIF-BERKELEY	Boggess, A.	GSFC	Weaver, H. F.	NAG 5-168	1582
11	UNIV CALIF-BERKELEY	Kondo, Y.	GSFC	Kuhi, L. V.	NAG 5-278	1583
11	UNIV CALIF-BERKELEY	Willis, S. E.	GSFC	Bowyer, C. S.	NAS 5-24445	1606
11	UNIV CALIF-BERKELEY	Mather, J. C.	GSFC	Smoot, G. F.	NAS 5-25007	1607
11	UNIV CALIF-BERKELEY	Hobbs, R.	GSFC	King, I.	NAS 5-25070	1608
11	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Mozer, F. S.	NAS 5-25770	1609
11	UNIV CALIF-BERKELEY	Porreca, G.	GSFC	Anderson, D. A.	NAS 5-25892	1610
11	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Anderson, K. A.	NAS 5-25980	1611
11	UNIV CALIF-BERKELEY	Bullock, G. D.	GSFC	Bowyer, C. S.	NAS 5-26837	1612
11	UNIV CALIF-BERKELEY	O'brien, J. J.	GSFC	Hudson, M. K.	NAS 5-26867	1615
11	UNIV CALIF-BERKELEY	Early, L. J.	GSFC	Bowyer, C. S.	NGR 05-003-450	1651
11	UNIV CALIF-BERKELEY	Jones, J. B.	MSFC	Bowyer, C. S.	NAG 8-301	1585
11	UNIV CALIF-BERKELEY	Swearingen, J. C.	MSFC	Silk, J. I.	NAG 8-351	1586
11	UNIV CALIF-BERKELEY	Stone, J. F.	MSFC	Bowyer, C. S.	NAG 8-373	1587
11	UNIV CALIF-BERKELEY	Stone, J. F.	MSFC	Kuhi, L. N.	NAG 8-381	1588
11	UNIV CALIF-BERKELEY	Stone, J. F.	MSFC	Kuhi, L. V.	NAG 8-397	1589
11	UNIV CALIF-BERKELEY	Stone, J. F.	MSFC	Bowyer, C. S.	NAG 8-440	1590
11	UNIV CALIF-BERKELEY	Stone, J. F.	MSFC	Price, P. B.	NAG 8-446	1591
11	UNIV CALIF-BERKELEY	Jones, C. T.	MSFC	Bowyer, S.	NAS 8-32577	1616
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-EL	Spinrad, H.	NAGW 270	1597
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-EL	Lin, R. P.	NASW 3575	1620
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-EL	Townes, C. H.	NGR 05-003-452	1653
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-EL	Welch, W. J.	NSG 7152	1664
11	UNIV CALIF-BERKELEY	Kaluziński, L. J.	HQ-EZ	Lampton, M. L.	NAGW 44	1592
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HQ-EZ	Smoot, G. F.	NAGW 66	1593
11	UNIV CALIF-BERKELEY	Weiler, E. J.	HQ-EZ	Spinrad, H.	NAGW 282	1598
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HQ-EZ	Townes, C. H.	NGL 05-003-272	1647
11	UNIV CALIF-BERKELEY	Kaluziński, L. J.	HQ-EZ	Price, P. B.	NGR 05-003-376	1650
11	UNIV CALIF-BERKELEY	Kaluziński, L. J.	HQ-EZ	Heckman, H. H.	NGR 05-003-513	1656
11	UNIV CALIF-BERKELEY	Stencel, R. E.	HQ-EZ	Silk, J. I.	NGR 05-003-578	1657
11	UNIV CALIF-BERKELEY	Weiler, E. J.	HQ-EZ	Richards, P. L.	NSG 7205	1665
11	UNIV CALIF-BERKELEY	Kaluziński, L. J.	HQ-EZ	Lin, R. P.	NSG 7592	1672
11	UNIV CALIF-BERKELEY	Carter, C. H.	HQ-LB	Shu, F. H.	NGT 05-003-802	1660
11	UNIV CALIF-IRVINE	Kaluziński, L. J.	HQ-EZ	Tucker, W. H.	NAGW 109	1694
11	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Kaula, W. H.	NAS 2-9128	1724
11	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Schubert, G.	NAS 2-9131	1725
11	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Plavec, M. J.	NAG 5-112	1708

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11	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	Jura, M. A.	NAG 5-116	1709
11	UNIV CALIF-L ANGELES	Kondo, Y.	GSFC	Grandi, S. A.	NAG 5-210	1711
11	UNIV CALIF-L ANGELES	Vitagliano, H. D.	GSFC	Jura, M. A.	NAS 5-25657	1729
11	UNIV CALIF-L ANGELES	Wales, R. O.	GSFC	Russell, C. T.	NAS 5-25772	1730
11	UNIV CALIF-L ANGELES	Mather, J. C.	GSFC	Wright, E. L.	NAS 5-26994	1736
11	UNIV CALIF-L ANGELES	Kondo, Y.	GSFC	Plavec, M. J.	NSG 5272	1765
11	UNIV CALIF-L ANGELES	Kondo, Y.	GSFC	Aller, L. H.	NSG 5358	1767
11	UNIV CALIF-L ANGELES	Bogges, A.	GSFC	Jura, M.	NSG 5377	1768
11	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Nicol, M. F.	NAGW 104	1717
11	UNIV CALIF-L ANGELES	Weiler, E. J.	HQ-EZ	Jura, M. A.	NAGW 80	1715
11	UNIV CALIF-L ANGELES	Kaluzienski, L. J.	HQ-EZ	Kennel, C. F.	NSG 7341	1773
11	UNIV CALIF-RIVERSIDE	Kaluzienski, L. J.	HQ-EZ	White, R. S.	NGR 05-008-022	1780
11	UNIV CALIF-SAN DIEGO	Fimmel, R. O.	ARC	Fillius, R. W.	NAS 2-6552	1806
11	UNIV CALIF-SAN DIEGO	Haughney, L. C.	ARC	Jones, B.	NGR 05-005-055	1835
11	UNIV CALIF-SAN DIEGO	Bogges, A.	GSFC	Worrall, D. M.	NAG 5-63	1785
11	UNIV CALIF-SAN DIEGO	Bogges, A.	GSFC	Smith, H. E.	NAG 5-194	1787
11	UNIV CALIF-SAN DIEGO	Kondo, Y.	GSFC	Puetter, R. C.	NAG 5-195	1788
11	UNIV CALIF-SAN DIEGO	Wales, R. O.	GSFC	Tobert, R. B.	NAG 5-229	1789
11	UNIV CALIF-SAN DIEGO	White, R. A.	GSFC	Harms, R. A.	NAS 5-24463	1807
11	UNIV CALIF-SAN DIEGO	Shannon, J. L.	GSFC	Beaver, E. A.	NAS 5-25054	1808
11	UNIV CALIF-SAN DIEGO	Davis, M. A.	GSFC	Patterson, L. E.	NAS 5-25448	1809
11	UNIV CALIF-SAN DIEGO	Jones, J. B.	MSFC	Marscher, A. P.	NAG 8-315	1792
11	UNIV CALIF-SAN DIEGO	Jones, J. B.	MSFC	Burbidge, E. M.	NAG 8-340	1793
11	UNIV CALIF-SAN DIEGO	Stone, J. F.	MSFC	Worrall, D. M.	NAG 8-377	1794
11	UNIV CALIF-SAN DIEGO	Stone, J. F.	MSFC	Peterson, L. E.	NAS 8-27974	1818
11	UNIV CALIF-SAN DIEGO	Brinton, H. C.	HQ-EL	Mendis, D. A.	NGR 05-009-110	1836
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Felten, J. E.	NAGW 12	1795
11	UNIV CALIF-SAN DIEGO	Weiler, E. J.	HQ-EZ	Canfield, R. C.	NAGW 30	1797
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Gould, R. J.	NGL 05-005-004	1829
11	UNIV CALIF-SAN DIEGO	Weiler, E. J.	HQ-EZ	Mcllwain, C. E.	NGR 05-009-188	1837
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Rothschild, R. E.	NSG 7294	1847
11	UNIV CALIF-SAN DIEGO	Weiler, E. J.	HQ-EZ	Burbidge, E. M.	NSG 7377	1848
11	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Lingenfelter, R. E.	NSG 7541	1850
11	UNIV CALIF-S CRUZ	Black, D. C.	ARC	Bodenheimer, P.	NCA 2-690001	1920
11	UNIV CALIF-S CRUZ	Witteborn, F. C.	ARC	Rank, D. M.	NCA 2-690101	1921
11	UNIV CALIF-S CRUZ	Black, D. C.	ARC	Bodenheimer, P.	NCA 2-690102	1922
11	UNIV CALIF-S CRUZ	McCreight, C. R.	ARC	Rank, D. M.	NCC 2-169	1923
11	UNIV CALIF-S CRUZ	Bogges, A.	GSFC	Wampler, E. J.	NAG 5-175	1916
11	UNIV CALIF-S CRUZ	Kondo, Y.	GSFC	Herbig, G. H.	NSG 5361	1926
11	UNIV CALIF-S CRUZ	Swearingen, J. C.	MSFC	Miller, J. S.	NAG 8-352	1917
11	UNIV CALIF-S CRUZ	Stone, J. F.	MSFC	Vogt, S. S.	NAG 8-407	1918
11	UNIV CALIF-S CRUZ	Kaluzienski, L. J.	HQ-EZ	Faulkner, J.	NAGW 195	1919
11	UNIV CALIF-S CRUZ	Bogges, N. W.	HQ-EZ	Rank, D. M.	NGR 05-061-015	1924
11	UNIV CALIF-S CRUZ	Weiler, E. J.	HQ-EZ	Miller, J. S.	NSG 7503	1927
11	UNIV CALIF-S CRUZ	Carter, C. H.	HQ-LB	Bodenheimer, P.	NGT 05-061-800	1925
11	UNIV OF CHICAGO	Fimmel, R. O.	ARC	Simpson, J. A.	NAS 2-6551	2476
11	UNIV OF CHICAGO	Smith, B. F.	ARC	Miller, R. H.	NCA 2-108101	2485
11	UNIV OF CHICAGO	Roelling, J. P.	ARC	Hildebrand, R. H.	NCA 2-108201	2486
11	UNIV OF CHICAGO	Smith, B. F.	ARC	Miller, R. H.	NCA 2-108902	2487
11	UNIV OF CHICAGO	Haughney, L. C.	ARC	Harper, D. A., Jr.	NGR 14-001-227	2500
11	UNIV OF CHICAGO	Haughney, L. C.	ARC	Hildebrand, R. H.	NSG 2057	2502
11	UNIV OF CHICAGO	Bogges, A.	GSFC	Frisch, P. C.	NAG 5-53	2470
11	UNIV OF CHICAGO	Corrigan, J. P.	GSFC	Frisch, P. C.	NAG 5-125	2471
11	UNIV OF CHICAGO	Kondo, Y.	GSFC	Hobbs, L. M.	NAG 5-255	2473
11	UNIV OF CHICAGO	Gemmell, J.	GSFC	Wright, D. K., Jr.	NAS 5-25731	2480
11	UNIV OF CHICAGO	Ormes, J. F.	GSFC	Muller, D.	NAS 5-26076	2481
11	UNIV OF CHICAGO	Brunk, W. E.	HQ-EL	Hildebrand, R. H.	NAGW 4	2474
11	UNIV OF CHICAGO	Kaluzienski, L. J.	HQ-EZ	Arnett, W. D.	NAGW 123	2475
11	UNIV OF CHICAGO	Gilman, D. A.	HQ-EZ	Parker, E. N.	NGL 14-001-001	2488
11	UNIV OF CHICAGO	Opp, A. G.	HQ-EZ	Meyer, P.	NGL 14-001-005	2489

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV OF CHICAGO	Opp, A. G.	HQ-EZ	Simpson, J. A.	NGL 14-001-006	2490
11	UNIV OF CHICAGO	Weiler, E. J.	HQ-EZ	Hobbs, L. M.	NGR 14-001-147	2498
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Conti, P. S.	NAG 5-78	2044
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Linsky, J. L.	NAG 5-82	2045
11	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Cash, W. C.	NAG 5-96	2046
11	UNIV COLORADO-BOLDR	Corrigan, J. P.	GSFC	Shull, J. M.	NAG 5-111	2047
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Shull, J. M.	NAG 5-193	2049
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Ayres, T. R.	NAG 5-199	2050
11	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Timothy, J. G.	NAG 5-211	2051
11	UNIV COLORADO-BOLDR	Boggess, A.	GSFC	Cash, W. C., Jr.	NAG 5-213	2053
11	UNIV COLORADO-BOLDR	Boggess, A.	GSFC	Linsky, J. L.	NAS 5-23274	2072
11	UNIV COLORADO-BOLDR	Boggess, A.	GSFC	Snow, T. P.	NAS 5-26409	2078
11	UNIV COLORADO-BOLDR	Kondo, Y.	GSFC	Snow, T. P., Jr.	NSG 5300	2095
11	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Snow, T. P., Jr.	NSG 5303	2096
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Simon, T. S.	NAG 8-382	2054
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Cash, W. C., Jr.	NAG 8-384	2055
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Ayres, T. R.	NAG 8-398	2056
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Linsky, J. L.	NAG 8-400	2057
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Snow, T. P., Jr.	NAG 8-424	2058
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Cash, Jr., W. C.	NAG 8-437	2059
11	UNIV COLORADO-BOLDR	Stone, J. F.	MSFC	Linsky, J.	NAG 8-439	2060
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HQ-EZ	Cash, W. C.	NAGW 203	2065
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HQ-EZ	Snow, T. P.	NASW 3569	2084
11	UNIV COLORADO-BOLDR	Kaluzienski, L.	HQ-EZ	McCray, R.	NSG 7128	2099
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HQ-EZ	Snow, T. P.	NSG 7626	2108
11	UNIV COLORADO-BOLDR	Weiler, E. J.	HQ-EZ	Ashby, N.	NSG 7637	2109
11	UNIV COLORADO-DENVER	Boggess, A.	GSFC	Lane, A. L.	NSG 5394	2110
11	UNIV OF DELAWARE	Stone, J. F.	MSFC	Shipman, H. L.	NAG 8-390	2157
11	UNIV OF DENVER	Goldberg, R. A.	GSFC	Barcus, J. R.	NAS 5-26627	2119
11	UNIV OF FLORIDA	Black, D. C.	ARC	Eichhorn, H. K.	NAG 2-46	2272
11	UNIV OF FLORIDA	Fimmel, R. O.	ARC	Weinberg, J. L.	NAS 2-11007	2279
11	UNIV OF FLORIDA	Corrigan, J. P.	GSFC	Wood, F. B.	NAG 5-110	2273
11	UNIV OF FLORIDA	Eiband, A. M.	GSFC	Weinberg, J.	NAS 5-26383	2281
11	UNIV OF FLORIDA	Brunk, W. E.	HQ-EL	Carr, T. D.	NAGW 196	2275
11	UNIV OF FLORIDA	Brunk, W. E.	HQ-EL	Weinberg, J. L.	NASW 3578	2283
11	UNIV OF GEORGIA	Kondo, Y.	GSFC	Shaw, J. S.	NAG 5-280	2390
11	UNIV OF HAWAII-MANOA	Haughney, L. C.	ARC	Becklin, E.	NAG 2-59	2397
11	UNIV OF HAWAII-MANOA	Goebel, J. H.	ARC	Capps, R. W.	NAG 2-165	2398
11	UNIV OF HAWAII-MANOA	Kondo, Y.	GSFC	Simon, T.	NAG 5-146	2399
11	UNIV OF HAWAII-MANOA	Adelman, A.	GSFC	Jefferies, J. T.	NAS 5-25181	2413
11	UNIV OF HAWAII-MANOA	Stone, J. F.	MSFC	Simon, T.	NAG 8-419	2400
11	UNIV OF HAWAII-MANOA	Stone, J. F.	MSFC	Henry, J. P.	NAG 8-436	2401
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-EL	Cruikshank, D.	NAGW 65	2404
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-EL	Jefferies, J. T.	NASW 3159	2417
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-EL	Pilcher, C. B.	NASW 3460	2418
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-EL	Jefferies, J. T.	NGL 12-001-057	2421
11	UNIV OF HAWAII-MANOA	Brunk, W. L.	HQ-EL	McCord, T. B.	NSG 7323	2426
11	UNIV OF HAWAII-MANOA	Chipman, E.	HQ-EZ	Jefferies, J. T.	NGL 12-001-011	2420
11	UNIV HOUSTON-CL LAKE	Fenner, R. G.	JSC	Dickerson, E. T.	NAS 9-16422	4564
11	UNIV ILLINOIS-URBANA	Gull, T. R.	GSFC	Dickel, J. R.	NAG 5-84	2522
11	UNIV ILLINOIS-URBANA	Boggess, A.	GSFC	Lamb, S. A.	NAG 5-85	2523
11	UNIV ILLINOIS-URBANA	Kondo, Y.	GSFC	Kaler, J. B.	NAG 5-171	2525
11	UNIV ILLINOIS-URBANA	Stone, J. F.	MSFC	Lamb, D. Q.	NAG 8-310	2526
11	UNIV ILLINOIS-URBANA	Stone, J. F.	MSFC	Dickel, J. R.	NAG 8-409	2527
11	UNIV ILLINOIS-URBANA	Brunk, W. E.	HQ-EL	Dickel, J. R.	NGR 14-005-176	2537
11	UNIV ILLINOIS-URBANA	Kaluzienski, L.	HQ-EZ	Lamb, D. Q.	NSG 7653	2547
11	UNIV OF IOWA	Fimmel, R. O.	ARC	Van Allen, J. A.	NAS 2-6553	2657
11	UNIV OF IOWA	Corrigan, J. P.	GSFC	Baumbach, M. M.	NAG 5-118	2650
11	UNIV OF IOWA	Wales, R. O.	GSFC	Calvert, W.	NAG 5-225	2652
11	UNIV OF IOWA	Wales, R. O.	GSFC	Gurnett, D. A.	NAS 5-11279	2659

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11	UNIV OF IOWA	Stone, R. G.	GSFC	Gurnett, D. A.	NAS 5-25999	2667
11	UNIV OF IOWA	Corrigan, J. P.	GSFC	Gurnett, D. A.	NAS 5-26125	2668
11	UNIV OF IOWA	Wales, R. O.	GSFC	Gurnett, D. A.	NAS 5-26819	2671
11	UNIV OF IOWA	O'brien, J. J.	GSFC	Frank, M.	NAS 5-26858	2674
11	UNIV OF IOWA	Lynch, J. T.	HQ-EE	Kurth, W. S.	NAGW 337	2655
11	UNIV OF KENTUCKY	Kondo, Y.	GSFC	Ferland, G. J.	NAG 5-239	2753
11	UNIV MARYLAND-COL PK	Witteborn, F. C.	ARC	Wilkerson, T. D.	NCC 2-208	2908
11	UNIV MARYLAND-COL PK	Bogges, A.	GSFC	Wilson, A. S.	NAG 5-54	2846
11	UNIV MARYLAND-COL PK	Pearl, J. C.	GSFC	Khanna, R. K.	NAG 5-216	2855
11	UNIV MARYLAND-COL PK	Kondo, Y.	GSFC	Harrington, J. P.	NAG 5-247	2861
11	UNIV MARYLAND-COL PK	Kondo, Y.	GSFC	A'hearn, M. F.	NAG 5-252	2862
11	UNIV MARYLAND-COL PK	Kondo, Y.	GSFC	Ahearn, M. F.	NAG 5-279	2864
11	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Coplan, M. A.	NAS 5-25472	2880
11	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Glorckler, G.	NAS 5-25735	2882
11	UNIV MARYLAND-COL PK	Ormes, J. F.	GSFC	Yodh, G. B.	NAS 5-26098	2884
11	UNIV MARYLAND-COL PK	Wales, R. O.	GSFC	Gloeckler, G.	NAS 5-26739	2892
11	UNIV MARYLAND-COL PK	Hobbs, R. W.	GSFC	Trasco, J. D.	NCC 5-9	2909
11	UNIV MARYLAND-COL PK	Ramaty, R.	GSFC	Holmgren, H. D.	NSG 5298	2944
11	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Wu, C. S.	NSG 5408	2949
11	UNIV MARYLAND-COL PK	Jones, J. B.	MSFC	Wilson, A. S.	NAG 8-307	2866
11	UNIV MARYLAND-COL PK	Swearingen, J. C.	MSFC	Wilson, A. S.	NAG 8-349	2867
11	UNIV MARYLAND-COL PK	Stone, J. F.	MSFC	Erickson, W. C.	NAG 8-369	2868
11	UNIV MARYLAND-COL PK	Stone, J. F.	MSFC	Matthews, D. L.	NAG 8-379	2869
11	UNIV MARYLAND-COL PK	Stone, J. F.	MSFC	Wilson, A. S.	NAG 8-429	2870
11	UNIV MARYLAND-COL PK	Brunk, W. E.	HQ-EL	A'hearn, M. F.	NSG 7322	2952
11	UNIV MARYLAND-COL PK	Kaluzienski, L. J.	HQ-EZ	Earl, J. A.	NGR 21-002-066	2912
11	UNIV MARYLAND-COL PK	Bogges, N. W.	HQ-EZ	Griem, H. R.	NGR 21-002-073	2913
11	UNIV MARYLAND-COL PK	Kaluzienski, L. J.	HQ-EZ	Gloeckler, G.	NGR 21-002-224	2916
11	UNIV MARYLAND-COL PK	Kaluzienski, L. J.	HQ-EZ	Scott, J. S.	NSG 7555	2954
11	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Rose, W.	NGT 21-002-801	2922
11	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Wentzel, D. G.	NGT 21-002-802	2923
11	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Gloeckler, G.	NGT 21-002-804	2925
11	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Sucher, J.	NGT 21-002-806	2927
11	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Kundu, M. R.	NGT 21-002-808	2929
11	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Gloeckler, G.	NGT 21-002-811	2932
11	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Gloeckler, G.	NGT 21-002-812	2933
11	UNIV OF MASS-AMHERST	Fimmel, R. O.	ARC	McGill, G. E.	NAS 2-9129	3198
11	UNIV OF MASS-AMHERST	Brunk, W. E.	HQ-EL	Irvine, W. M.	NGL 22-010-023	3200
11	UNIV MICH-ANN ARBOR	Fimmel, R. D.	ARC	Donahue, T. M.	NAS 2-9126	3271
11	UNIV MICH-ANN ARBOR	Fimmel, R. O.	ARC	Nagy, A. F.	NAS 2-9130	3272
11	UNIV MICH-ANN ARBOR	Corrigan, J. P.	GSFC	Atreya, S. K.	NAG 5-109	3252
11	UNIV MICH-ANN ARBOR	Michalitsianos, A. G.	GSFC	Kirshner, R. P.	NAG 5-183	3254
11	UNIV MICH-ANN ARBOR	Kondo, Y.	GSFC	Cowley, A. P.	NAG 5-251	3256
11	UNIV MICH-ANN ARBOR	Spencer, N.	GSFC	Carignan, G. R.	NAS 5-26840	3294
11	UNIV MICH-ANN ARBOR	Jones, J. B.	MSFC	Kirshner, R. P.	NAG 8-341	3257
11	UNIV MICH-ANN ARBOR	Stone, J. F.	MSFC	Richstone, D.	NAG 8-354	3258
11	UNIV MICH-ANN ARBOR	Stone, J. F.	MSFC	Cowley, A. P.	NAG 8-383	3259
11	UNIV MICH-ANN ARBOR	Stone, J. F.	MSFC	Hegyí, D. J.	NAG 8-414	3260
11	UNIV MICH-ANN ARBOR	Chappell, R.	MSFC	Sharp, W. E.	NAS 8-34910	3302
11	UNIV MICH-ANN ARBOR	Weiler, E. J.	HQ-EZ	Hiltner, W. A.	NGR 23-005-464	3311
11	U MINN-MNPLS-ST PAUL	Kondo, Y.	GSFC	Sitko, M. L.	NAG 5-190	3338
11	U MINN-MNPLS-ST PAUL	Kondo, Y.	GSFC	Humphreys, R. M.	NAG 5-191	3339
11	U MINN-MNPLS-ST PAUL	Wales, R. O.	GSFC	Kellogg, P. J.	NAS 5-11310	3341
11	U MINN-MNPLS-ST PAUL	Sugiura, M.	GSFC	Cahill, L. J., Jr.	NAS 5-25389	3343
11	U MINN-MNPLS-ST PAUL	Klein, B.	GSFC	Kellogg, P. J.	NAS 5-25753	3344
11	U MINN-MNPLS-ST PAUL	Sing, M.	GSFC	Waddington, C. J.	NAS 5-26056	3345
11	U MINN-MNPLS-ST PAUL	Kondo, Y.	GSFC	Davidson, K.	NSG 5397	3356
11	U MINN-MNPLS-ST PAUL	Stone, J. F.	MSFC	Waddington, C. J.	NAS 8-27977	3346
11	U MINN-MNPLS-ST PAUL	Kaluzienski, L. J.	HQ-EZ	Waddington, C. J.	NGR 24-005-050	3351
11	U MINN-MNPLS-ST PAUL	Bogges, N. W.	HQ-EZ	Ney, E.	NSG 2014	3353

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV MO-ST LOUIS	Kondo, Y.	GSFC	Schwartz, R. D.	NAG 5-243	3409
11	UNIV NEBRASKA-LINCLN	Boggess, A.	GSFC	Schmidt, E. G.	NSG 5391	3447
11	UNIV NEW HAMP-DURHAM	Wales, R. O.	GSFC	Smith, C.	NAG 5-228	3469
11	UNIV NEW HAMP-DURHAM	Davis, M. A.	GSFC	Lockwood, J. A.	NAS 5-25420	3476
11	UNIV NEW HAMP-DURHAM	Davis, M. A.	GSFC	Lockwood, J. A.	NAS 5-26645	3477
11	UNIV NEW HAMP-DURHAM	Kaluziński, L. J.	HQ-EZ	Chupp, E. L.	NGL 30-002-021	3481
11	UNIV NEW HAMP-DURHAM	Opp, A. G.	HQ-EZ	Webber, W. R.	NGR 30-002-052	3482
11	UNIV NEW HAMP-DURHAM	Kaluziński, L. J.	HQ-EZ	Lockwood, J. A.	NSG 7481	3485
11	UNIV OF NEW MEXICO	Stone, J. F.	MSFC	Burns, J. O.	NAG 8-386	3567
11	UNIV OKLAHOMA-NORMAN	Stone, J. F.	MSFC	Chincarini, G.	NAG 8-372	4135
11	UNIV OREGON-EUGENE	Black, D. C.	ARC	Kemp, J. C.	NAG 2-131	4162
11	UNIV OREGON-EUGENE	Caroff, L. J.	ARC	Nolt, I. G.	NCA 2-587201	4164
11	UNIV OREGON-EUGENE	Weiler, E. J.	HQ-EZ	Zimmerman, R. L.	NSG 7639	4167
11	UNIV OF PENNSYLVANIA	Jones, J. B., Jr.	MSFC	Shen, B. S.	NAS 8-33336	4288
11	UNIV OF PITTSBURGH	Black, D. C.	ARC	Gatewood, G. D.	NAG 2-53	4294
11	UNIV OF PITTSBURGH	Kondo, Y.	GSFC	Turnshek, D. A.	NAG 5-249	4297
11	UNIV OF PITTSBURGH	Boyce, J. M.	HQ-EL	Hapke, B.	NSG 7147	4311
11	UNIV OF ROCHESTER	Goebel, J. H.	ARC	Forrest, W. J.	NAG 2-117	3829
11	UNIV OF ROCHESTER	Haughney, L. C.	ARC	Pipher, J. L.	NSG 2343	3834
11	UNIV OF ROCHESTER	Kondo, Y.	GSFC	Heffer, H. L.	NAG 5-46	3830
11	UNIV OF ROCHESTER	Boggess, A.	GSFC	Savedoff, M. P.	NAG 5-123	3831
11	UNIV OF ROME	Lacurto, J.	HQ-TN	Taylor, C. A.	NASW 2135	5161
11	UNIV OF SOUTHERN CAL	Fimmel, R. O.	ARC	Judge, D. L.	NAS 2-6558	1990
11	UNIV OF SOUTHERN CAL	Pollack, J. B.	ARC	Kumar, S.	NCA 2-730101	1994
11	UNIV OF SOUTHERN CAL	Corrigan, J. P.	GSFC	Peters, G.	NAG 5-126	1976
11	UNIV OF SOUTHERN CAL	Kupperian, J. E., Jr.	GSFC	Peters, G. J.	NSG 5356	2000
11	UNIV OF SOUTHERN CAL	Boggess, A.	GSFC	Peters, G. J.	NSG 5422	2001
11	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Broadfoot, A. L.	NAGW 62	1980
11	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Shemansky, D. E.	NAGW 106	1981
11	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Kumar, S.	NAGW 315	1986
11	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Shemansky, D. E.	NAGW 316	1987
11	UNIV OF SOUTHERN CAL	Chipman, E.	HQ-EZ	Rhodes, E. J.	NAGW 13	1977
11	UNIV OF SOUTHERN CAL	Weiler, E. J.	HQ-EZ	Barry, P.	NAGW 147	1983
11	UNIV TENNESSEE-KNOXV	Dietrich, J. W.	JSC	Hunter, R. H.	NGL 43-001-140	4382
11	UNIV TENNESSEE-KNOXV	Britton, H. C.	HQ-EL	Fox, K.	NAGW 125	4370
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Harvey, P. M.	NAG 2-67	4569
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Evans, N. J.	NAG 2-133	4570
11	UNIV TEXAS-AUSTIN	Haughney, L. C.	ARC	Evans, N. J., II	NAG 2-199	4572
11	UNIV TEXAS-AUSTIN	Werner, M. W.	ARC	Shields, G.	NCA 2-781201	4610
11	UNIV TEXAS-AUSTIN	Kondo, Y.	GSFC	Parsons, S. B.	NAG 5-80	4577
11	UNIV TEXAS-AUSTIN	Boggess, A.	GSFC	Snedden, C.	NAG 5-173	4578
11	UNIV TEXAS-AUSTIN	Kondo, Y.	GSFC	Wills, B. J.	NAG 5-258	4579
11	UNIV TEXAS-AUSTIN	Vitagliano, H. D.	GSFC	Trafton, L. M.	NAS 5-25656	4584
11	UNIV TEXAS-AUSTIN	Adelman, A. G.	GSFC	Silverberg, E. C.	NAS 5-25948	4586
11	UNIV TEXAS-AUSTIN	Boggess, A.	GSFC	Parsons, S. B.	NSG 5328	4618
11	UNIV TEXAS-AUSTIN	Boggess, A.	GSFC	Wray, J. D.	NSG 5337	4619
11	UNIV TEXAS-AUSTIN	Kondo, Y.	GSFC	Lambert, D. L.	NSG 5379	4620
11	UNIV TEXAS-AUSTIN	Boggess, A.	GSFC	Wills, B. J.	NSG 5387	4621
11	UNIV TEXAS-AUSTIN	Stone, J. F.	MSFC	Parsons, S. B.	NAG 8-404	4580
11	UNIV TEXAS-AUSTIN	O'dell, C. R.	MSFC	Lambert, D. L.	NAS 8-32905	4590
11	UNIV TEXAS-AUSTIN	O'dell, C. R.	MSFC	Jefferys, W. H.	NAS 8-32906	4591
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-EL	Smith, H. J.	NGR 44-012-152	4612
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-EL	Mulholland, J. D.	NGR 44-012-282	4613
11	UNIV TEXAS-AUSTIN	Weiler, E. J.	HQ-EZ	Duncombe, R. L.	NAGW 233	4582
11	UNIV TEXAS-AUSTIN	Weiler, E. J.	HQ-EZ	Wray, J. D.	NSG 7371	4624
11	UNIV TEXAS-AUSTIN	Boggess, N. W.	HQ-EZ	Evans, N. J., II	NSG 7381	4625
11	UNIV TEXAS-DALLAS	Wales, R. O.	GSFC	Heikkila, W. J.	NAG 5-226	4633
11	UNIV TEXAS-DALLAS	Chappell, R.	MSFC	Higlis, R. A.	NAS 8-35011	4650
11	UNIV TEXAS-DALLAS	Brunk, W. E.	HQ-EL	Hoffman, J. H.	NASW 3576	4651
11	UNIV OF TOLEDO	Boggess, A.	GSFC	Bopp, B. W.	NAG 5-67	4097

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11	UNIV OF TOLEDO	Kondo, Y.	GSFC	Witt, W. N.	NAG 5-167	4098
11	UNIV OF TOLEDO	Kondo, Y.	GSFC	Morrison, N. D.	NAG 5-253	4099
11	UNIV OF TOLEDO	Kondo, Y.	GSFC	Bopp, B. W.	NAG 5-254	4100
11	UNIV OF TOLEDO	Boggess, A.	GSFC	Morrison, N. D.	NSG 5359	4108
11	UNIV OF TOLEDO	Brinton, H. C.	HQ-EL	Delsemme, A. H.	NSG 7301	4109
11	UNIV OF TOLEDO	Stencel, R. E.	HQ-EZ	Witt, A. N.	NAGW 89	4101
11	UNIV OF TOLEDO	Weiler, E. J.	HQ-EZ	Bopp, B. W.	NAGW 229	4102
11	UNIV OF UTAH	Brunk, W. E.	HQ-EL	Shorthill, R. W.	NAGW 11	4691
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	Thuan, T. X.	NAG 5-61	4852
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	O'connell, R. W.	NAG 5-256	4854
11	UNIV OF VIRGINIA	Kondo, Y.	GSFC	Thuan, T. X.	NAG 5-257	4855
11	UNIV OF VIRGINIA	Johnson, G.	GSFC	O'connell, R. W.	NAS 5-22346	4862
11	UNIV OF VIRGINIA	Stecher, T. P.	GSFC	O'connell, R. W.	NAS 5-26110	4865
11	UNIV OF VIRGINIA	Cyphers, H. D.	GSFC	O'connell, R. W.	NAS 5-26476	4867
11	UNIV OF VIRGINIA	White, R.	MSFC	Sarazin, C. L.	NAG 8-308	4856
11	UNIV OF VIRGINIA	Stone, J. F.	MSFC	Thuan, T. X.	NAG 8-375	4857
11	UNIV OF VIRGINIA	Jones, J. B., Jr.	MSFC	Thuan, T. X.	NAS 8-33327	4869
11	UNIV OF VIRGINIA	Jones, J. B., Jr.	MSFC	Sarazin, C. L.	NAS 8-33348	4870
11	UNIV OF VIRGINIA	Brunk, W. E.	HQ-EL	Ianna, P. A.	NSG 7364	4878
11	UNIV OF WASHINGTON	Witteborn, F. C.	ARC	Cardelli, J. A.	NCA 2-850102	5029
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Bohm, K. H.	NAG 5-45	4993
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Hodge, P. W.	NAG 5-207	4996
11	UNIV OF WASHINGTON	Boggess, A.	GSFC	Wallerstein, G.	NSG 5374	5037
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Szkody, P.	NSG 5395	5038
11	UNIV OF WASHINGTON	Kondo, Y.	GSFC	Bohm-vitense, E.	NSG 5398	5039
11	UNIV OF WASHINGTON	Jones, J. B.	MSFC	Wallerstein, G.	NAG 8-342	4999
11	UNIV OF WASHINGTON	Swearingen, J. C.	MSFC	Sullivan, W. T.	NAG 8-359	5000
11	UNIV OF WASHINGTON	Swearingen, J. C.	MSFC	Szkody, P.	NAG 8-361	5001
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Boynton, P. E.	NAG 8-366	5002
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Bohm-vitense, E.	NAG 8-378	5003
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Wallerstein, G.	NAG 8-399	5004
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Balick, B.	NAG 8-405	5005
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Bohm-vitense, E.	NAG 8-411	5006
11	UNIV OF WASHINGTON	Stone, J. F.	MSFC	Margon, B. H.	NAG 8-433	5007
11	UNIV OF WASHINGTON	Jones, J. B., Jr.	MSFC	Szkody, P.	NAS 8-33337	5024
11	UNIV WISC-MADISON	Kondo, Y.	GSFC	Savage, B. D.	NAG 5-186	5077
11	UNIV WISC-MADISON	Sours, W.	GSFC	Bliss, R.	NAS 5-24487	5094
11	UNIV WISC-MADISON	Fellerman, K.	GSFC	Code, A. D.	NAS 5-25487	5097
11	UNIV WISC-MADISON	Vitagliano, H. D.	GSFC	Savage, B. C.	NAS 5-25714	5098
11	UNIV WISC-MADISON	Young, E.	GSFC	Code, A. D.	NAS 5-26055	5100
11	UNIV WISC-MADISON	Sing, M. L.	GSFC	Kraushaer, W. L.	NAS 5-26078	5101
11	UNIV WISC-MADISON	Young, E.	GSFC	Code, A. D.	NAS 5-26777	5107
11	UNIV WISC-MADISON	Early, L. J.	GSFC	Code, A. D.	NGL 50-002-013	5116
11	UNIV WISC-MADISON	Early, L. J.	GSFC	Kraushaar, W. L.	NGL 50-002-044	5117
11	UNIV WISC-MADISON	Boggess, A.	GSFC	Code, A. D.	NSG 5363	5127
11	UNIV WISC-MADISON	Jones, J. B.	MSFC	Kraushaar, W. L.	NAG 8-319	5079
11	UNIV WISC-MADISON	Jones, J. B.	MSFC	Cassinelli, J. P.	NAG 8-345	5080
11	UNIV WISC-MADISON	Stone, J. F.	MSFC	Sanders, W. T.	NAG 8-401	5081
11	UNIV WISC-MADISON	Stone, J. F.	MSFC	Cassinelli, J. P.	NAG 8-410	5082
11	UNIV WISC-MADISON	Stone, J. F.	MSFC	McCammon, D.	NAG 8-431	5083
11	UNIV WISC-MADISON	Weiler, E. J.	HQ-EZ	Cassinelli, J. P.	NAGW 283	5086
11	UNIV OF WYOMING	Haughney, L. C.	ARC	Thronson, H. A., Jr.	NAG 2-134	5134
11	UTAH STATE UNIV	Corrigan, J. P.	GSFC	Raitt, W. J.	NAG 5-121	4702
11	UTAH STATE UNIV	O'brien, J.	GSFC	Torr, M.	NAS 5-26849	4713
11	UTAH STATE UNIV	Chappell, C. R.	MSFC	Raitt, W. J.	NAG 8-17	4705
11	VANDERBILT UNIVERSTY	Kondo, Y.	GSFC	Eaton, J. A.	NAG 5-176	4393
11	VANDERBILT UNIVERSTY	Roman, N. G.	HQ-EZ	Hall, D.	NSG 7463	4399
11	VANDERBILT UNIVERSTY	Weiler, E. J.	HQ-EZ	Hall, D.	NSG 7543	4400
11	VILLANOVA UNIVERSITY	Boggess, A.	GSFC	Guinan, E. F.	NAG 5-205	4313
11	VILLANOVA UNIVERSITY	Kondo, Y.	GSFC	Sion, E. M.	NAG 5-260	4314

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11	VILLANOVA UNIVERSITY	Boggess, A.	GSFC	Guinan, E. F.	NSG 5375	4316
11	VIRGINIA POLY INST	Jones, J. B.	MSFC	O'dell, S. L.	NAG 8-314	4938
11	VIRGINIA POLY INST	Stone, J. F.	MSFC	O'dell, S. L.	NAG 8-348	4939
11	VIRGINIA POLY INST	Stone, J. F.	MSFC	Becker, R.	NAG 8-432	4940
11	WASHINGTON ST UNIV	Boggess, A.	GSFC	Lutz, J. H.	NSG 5383	5056
11	WASHINGTON UNIVERSTY	Stone, J. F.	MSFC	Israel, M. H.	NAS 8-27976	3421
11	WASHINGTON UNIVERSTY	Boyce, J. M.	HQ-EL	Walker, R. M.	NAGW 122	3416
11	WASHINGTON UNIVERSTY	Brunk, W. E.	HQ-EL	Smith, W. H.	NSG 7334	3430
11	WASHINGTON UNIVERSTY	Opp, A. G.	HQ-EZ	Israel, M. H.	NGR 26-008-001	3426
11	WASHINGTON UNIVERSTY	Weiler, E. J.	HQ-EZ	Smith, W. H.	NSG 7372	3431
11	WESTRN KENTUCKY UNIV	Boggess, A.	GSFC	Hackney, K. R.	NSG 5238	2765
11	WHEATON COLLEGE	Kondo, Y.	GSFC	Barker, T.	NSG 5376	3206
11	YALE UNIVERSITY	Boggess, A.	GSFC	Oemler, A., Jr.	NAG 5-188	2142
11	YALE UNIVERSITY	Eby, P.	MSFC	Parker, P. D.	NAS 8-33572	2145
12	ARIZONA STATE UNIV	Carter, C. H.	HQ-LB	Moore, C. B.	NGT 03-001-800	1115
12	BAYLOR COL OF MED	Coleman, W.	JSC	Duncan, W. C.	NAS 9-16358	4415
12	BOSTON COLLEGE	Jaffe, R. L.	ARC	Guberman, S. L.	NAG 2-89	2969
12	BOWIE STATE COLLEGE	Gaddy, E. M.	GSFC	Rock, M.	NSG 5009	2799
12	CALIF INST OF TECH	Dietrich, J. W.	JSC	Wasserburg, G. J.	NGL 05-002-188	1285
12	CALIF INST OF TECH	Devincenzi, D. L.	HQ-EB	Yung, Y. L.	NAGW 254	1263
12	CASE WESTERN RESERVE	Seng, G. T.	LERC	Claspy, P. C.	NAG 3-98	3899
12	CASE WESTERN RESERVE	Lauver, R. M.	LERC	Ishida, H.	NAG 3-126	3903
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ritchey, W. M.	NAG 3-158	3905
12	CASE WESTERN RESERVE	Reid, M. A.	LERC	Yeager, E.	NAG 3-219	3912
12	CASE WESTERN RESERVE	Abbey, K. M.	LERC	Litt, M.	NAG 3-234	3917
12	CASE WESTERN RESERVE	Purvis, C. K.	LERC	Gordon, W. L.	NAG 3-235	3918
12	CASE WESTERN RESERVE	Riley, T. J.	LERC	Angus, J.	NAS 3-21965	3936
12	CASE WESTERN RESERVE	Hsu, L. C.	LERC	Koenig, J. L.	NSG 3276	3955
12	CATHOLIC UNIVERSITY	Nava, D. F.	GSFC	Hunt, J. B.	NSG 5173	2170
12	CHRISTPHR NEWPRT COL	Wilkins, J. R.	LARC	Sacks, L. J.	NAG 1-268	4730
12	CLARK COLLEGE	Whitten, R. C.	ARC	Veluri, V. R.	NSG 2143	2326
12	CLARKSON COL OF TECH	Schmidt, H.	LERC	Jellinek, H. H.	NAG 3-145	3595
12	COLLEGE OF WM & MARY	St.Clair, T. L.	LARC	Orwoll, R. A.	NAG 1-144	4736
12	COLLEGE OF WM & MARY	Freeman, W. T., Jr.	LARC	Kranbuehl, D. E.	NAG 1-237	4738
12	COLLEGE OF WM & MARY	Johnston, N. J.	LARC	Kranbuehl, D. E.	NSG 1095	4746
12	COLORADO SCH OF MINE	Bittker, D. A.	LERC	Daniel, S. R.	NAG 3-197	2006
12	COPPIN STATE COLLEGE	Gaddy, E. M.	GSFC	McDermott, P. P.	NSG 5051	2801
12	CORNELL UNIVERSITY	Devincenzi, D. L.	HQ-EB	Sagan, C. E.	NGR 33-010-101	3664
12	DREXEL UNIVERSITY	Torres, A. L.	GSFC	Thornton, D. C.	NSG 6035	4203
12	DREXEL UNIVERSITY	Bittker, D. A.	LERC	Cohen, R. S.	NAG 3-183	4189
12	FLORIDA INST OF TECH	Howard, F. S.	KSC	Thomas, J. J.	NAS10-10106	2246
12	GEORGE MASON UNIV	Moe, K. L.	GSFC	Mitchell, C. M.	NAS 5-26952	4755
12	GEORGIA INST OF TECH	Wydeven, T. J.	ARC	Carden, J.	NAG 2-170	2340
12	GEORGIA INST OF TECH	MacElroy, R. D.	ARC	Carden, J. L.	NCA 2-260102	2370
12	HOWARD UNIVERSITY	Dickens, P. L.	GSFC	Nicholson, J. M.	NAG 5-204	2212
12	HOWARD UNIVERSITY	Brinton, H. C.	HQ-EL	Jackson, W. M.	NSG 5071	2230
12	INDIANA U-BLOOMINGTN	Devincenzi, D. L.	HQ-EB	Hayes, J. M.	NGR 15-003-118	2561
12	INDIANA U-BLOOMINGTN	Carter, C. H.	HQ-LB	Langhoff, P. W.	NGT 15-003-800	2562
12	KENT STATE UNIV-KENT	Quattrone, P. D.	ARC	Madey, R.	NSG 2013	3986
12	LEHIGH UNIVERSITY	Boese, R. W.	ARC	Lovejoy, R. W.	NCA 2-380101	4210
12	LEHIGH UNIVERSITY	Warner, J. L.	JSC	Goldstein, J. I.	NGR 39-007-056	4214
12	LOUISIANA TECH UNIV	Byvik, C. E.	LARC	Miles, A. M.	NAG 1-162	2777
12	MASS INST OF TECH	Brabbs, T. A.	LERC	Hoult, D. P.	NCC 3-15	3133
12	MASS INST OF TECH	Antoine, A. C.	LERC	Uhlmann, D. R.	NSG 3286	3169
12	MASS INST OF TECH	Devincenzi, D. L.	HQ-EB	Lewis, J. S.	NAGW 114	3093
12	MASS INST OF TECH	Devincenzi, D. L.	HQ-EB	Rich, A.	NGR 22-009-277	3142
12	MICHIGAN STATE UNIV	Seng, G. T.	LERC	Crouch, S. R.	NAG 3-93	3226
12	MICHIGAN STATE UNIV	Seng, G. T.	LERC	Enke, C. G.	NAG 3-107	3227
12	MICHIGAN TECH UNIV	Dreshfield, R. L.	LERC	Heckel, R. W.	NAG 3-216	3236
12	MISS UNIV FOR WOMEN	St.Clair, T. L.	LARC	Pratt, J. R.	NSG 1539	3381

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12	MOREHOUSE COLLEGE	Watson, R. T.	HQ-EB	Hall, J. H.	NSG 7652	2389
12	OHIO STATE UNIV	Langhoff, S. R.	ARC	Shavitt, I.	NAG 2-163	3996
12	OHIO STATE UNIV	Dressler, R. F.	HQ-EM	Stroud, D. G.	NASW 3601	4014
12	OLD DOMINION UNIV	Phillips, D. H.	LARC	Ake, R. L.	NSG 1393	4825
12	PENN STATE U-UNIV PK	Pollack, J. B.	ARC	Castleman, W. A., Jr.	NAG 2-176	4224
12	POLY INST OF NY	Rosser, R. W.	ARC	Pearce, E. M.	NSG 2147	3718
12	POLY INST OF NY	Devincenzi, D. L.	HQ-EB	Eirich, F. R.	NGR 33-006-070	3716
12	PRINCETON UNIVERSITY	Brabbs, T. A.	LERC	Glassman, I.	NAG 3-310	3498
12	RENSSELAER POLY-NY	Seng, G. T.	GSFC	Lauer, J. L.	NAG 3-205	3734
12	RENSSELAER POLY-NY	Sheibley, D. W.	LERC	Moore, J. A.	NAG 3-199	3732
12	RENSSELAER POLY-NY	Bannister, T. C.	MSFC	Glicksman, M. E.	NAS 8-32690	3741
12	RENSSELAER POLY-NY	Devincenzi, D. L.	HQ-EB	Ferris, J. P.	NGR 33-018-148	3746
12	RICE UNIVERSITY	Carter, C. H.	HQ-LB	Leeman, W. R.	NGT 44-006-802	4455
12	ROCKEFELLER UNIV	MacElroy, R. D.	ARC	Loew, G.	NCC 2-196	3756
12	SAN FRAN STATE UNIV	Lawless, J. B.	ARC	Orenberg, J. B.	NCA 2-660102	1350
12	SAN FRAN STATE UNIV	Devincenzi, D. L.	HQ-EB	Orenberg, J. B.	NAGW 94	1348
12	SAN FRAN STATE UNIV	Devincenzi, D. L.	HQ-EB	Orenberg, J. B.	NAGW 324	1349
12	SAN JOSE STATE UNIV	Miquel, J.	ARC	Yengoyan, L. S.	NCA 2-675004	1362
12	SAN JOSE STATE UNIV	Wydeven, T.	ARC	Spitze, L. A.	NCA 2-675204	1371
12	SAN JOSE STATE UNIV	Cagliostro, D. E.	ARC	Ballard, R. C.	NCC 2-4	1374
12	SAN JOSE STATE UNIV	Wydeven, T.	ARC	Spitze, L. A.	NCC 2-8	1375
12	SAN JOSE STATE UNIV	Heimbuch, A. H.	ARC	Ling, A.	NCC 2-28	1376
12	SAN JOSE STATE UNIV	Wydeven, T.	ARC	Spitze, L. A.	NCC 2-53	1380
12	SAN JOSE STATE UNIV	Kourtides, D. A.	ARC	Ling, A. C.	NCC 2-56	1381
12	SAN JOSE STATE UNIV	Rosser, R. W.	ARC	Neptune, J. A.	NCC 2-81	1386
12	SAN JOSE STATE UNIV	Chang, S.	ARC	Coyne, L. M.	NCC 2-153	1395
12	SAN JOSE STATE UNIV	Sawko, P. M.	ARC	Mayer, L. A.	NSG 2371	1406
12	SO ILL UNIV-CARBONDL	Carle, G. C.	ARC	Phillips, J.	NCA 2-735201	2466
12	SO ILL UNIV-CARBONDL	Carter, C. H.	HQ-LB	Phillips, J. B.	NGT 14-018-800	2468
12	SPRING ARBOR COL	Charleson, J. A.	LERC	Johnson, D. A.	NAG 3-148	3242
12	STANFORD UNIVERSITY	Desmarais, D. J.	ARC	Bonner, W. A.	NCA 2-745103	1486
12	STANFORD UNIVERSITY	Desmarais, D. J.	ARC	Bonner, W. A.	NCA 2-745202	1492
12	STANFORD UNIVERSITY	Lynch, J. T.	HQ-EZ	Spreiter, J. R.	NAGW 86	1450
12	STANFORD UNIVERSITY	Carter, C. H.	HQ-LB	Zare, R. N.	NGT 05-020-800	1553
12	STATE U NY-STONY BRK	Brabbs, T. A.	LERC	Yang, C. H.	NCC 3-2	3803
12	TEXAS A&M UNIVERSITY	Gibson, E. K.	JSC	Young, V.	NAS 9-16185	4505
12	TUSKEGEE INSTITUTE	Bryan, C. J.	KSC	Dillon, I. G.	NAG10-1	1022
12	TUSKEGEE INSTITUTE	Bryan, C. J.	KSC	Dillon, I. G.	NAG10-6	1023
12	UNIV ALA-BIRMINGHAM	Devincenzi, D. L.	HQ-EB	Lacey, J. C., Jr.	NGR 01-010-001	1029
12	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Hendricks, J. B.	NAS 8-33384	1041
12	UNIV ALA-HUNTSVILLE	Snyder, R. S.	MSFC	Harris, J. M.	NAS 8-33978	1054
12	UNIV OF ARIZONA	Werner, W.	ARC	Angel, J. R.	NAG 2-161	1133
12	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Goren, S. L.	NCA 2-50001	1622
12	UNIV CALIF-BERKELEY	Altman, R. A.	ARC	Williams, M. C.	NCA 2-50905	1632
12	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Grens, E. A.	NCC 2-140	1638
12	UNIV CALIF-BERKELEY	Devincenzi, D. L.	HQ-EB	Jukes, J. H.	NGR 05-003-460	1654
12	UNIV CALIF-DAVIS	Fish, R. H.	ARC	Needles, H. L.	NCC 2-20	1680
12	UNIV CALIF-L ANGELES	Altman, R. L.	ARC	Knuth, E. L.	NCA 2-390903	1741
12	UNIV CALIF-L ANGELES	Arnold, J. O.	ARC	Heller, E. J.	NCC 2-156	1744
12	UNIV CALIF-L ANGELES	Dietrich, J. W.	JSC	Wasson, J. T.	NGL 05-007-367	1748
12	UNIV CALIF-L ANGELES	Devincenzi, D. L.	HQ-EB	Kerridge, J. F.	NAGW 347	1722
12	UNIV CALIF-SAN DIEGO	Dietrich, J. W.	JSC	Arnold, J. R.	NGL 05-009-148	1832
12	UNIV CALIF-SAN DIEGO	Dietrich, J. W.	JSC	Marti, K.	NGL 05-009-150	1833
12	UNIV CALIF-S BARBARA	Kohl, F. J.	LERC	Steinberg, M.	NSG 3256	1912
12	UNIV OF CHICAGO	Dietrich, J. W.	JSC	Clayton, R. N.	NGL 14-001-169	2493
12	UNIV COLORADO-BOLDR	Pollock, G. E.	ARC	Sievers, R. E.	NCA 2-170201	2085
12	UNIV COLORADO-BOLDR	Pollack, J. B.	ARC	Castleman, A. W.	NSG 2248	2091
12	UNIV OF DAYTON	Harwell, R. J.	MSFC	Salyer, I. O.	NAS 8-34544	4086
12	UNIV OF HAWAII-MANOA	Devincenzi, D. L.	HQ-EB	Folsome, C. E.	NGR 12-001-109	2422
12	UNIV HOUSTON-HOUSTON	Coleman, M.	JCC	Zlatkis, A.	NAS 9-16351	4550

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12	UNIV ILLINOIS-URBANA	Devincenzi, D. L.	HQ-EB	Woese, C. R.	NSG 7044	2545
12	UNIV OF IOWA	Kerslake, W. R.	LERC	Stawley, W. C.	NAG 3-236	2649
12	UNIV MARYLAND-COL PK	Hochstein, L. I.	ARC	Ponnamperuma, C.	NCA 2-420001	2903
12	UNIV MARYLAND-COL PK	Hochstein, L. I.	ARC	Ponnamperuma, C.	NCA 2-420201	2904
12	UNIV MARYLAND-COL PK	Korb, C. L.	GSFC	Wilkerson, T. D.	NAG 5-222	2856
12	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Khanna, R. K.	NSG 5172	2942
12	UNIV MARYLAND-COL PK	Seng, G. T.	LERC	Adler, I.	NAG 3-192	2842
12	UNIV MARYLAND-COL PK	Bredt, J. H.	HQ-EB	Ponnamperuma, C.	NAGW 219	2874
12	UNIV MARYLAND-COL PK	Devincenzi, D. L.	HQ-EB	Ponnamperuma, C.	NAGW 226	2875
12	UNIV MARYLAND-COL PK	Geib, D. S.	HQ-EB	Ponnamperuma, C.	NAGW 293	2876
12	UNIV MARYLAND-COL PK	Devincenzi, D. L.	HQ-EB	Ponnamperuma, C.	NGR 21-002-317	2919
12	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Adler, I.	NGT 21-002-807	2928
12	UNIV MD-EASTRN SHORE	Torres, A. L.	GSFC	Hung, Y. W.	NAG 5-608	2956
12	UNIV OF MASS-AMHERST	Devincenzi, D. L.	HQ-EB	Huguenin, R. L.	NSG 7397	3202
12	UNIV OF MIAMI	Devincenzi, D. L.	HQ-EB	Fox, S. W.	NGR 10-007-008	2318
12	UNIV MICH-ANN ARBOR	Daunton, N.	ARC	Anderson, D. J.	NAG 2-185	3247
12	UNIV MICH-ANN ARBOR	Devincenzi, D. L.	HQ-EB	Walker, J. C.	NAGW 176	3265
12	UNIV MO-ROLLA	Jones, J. J.	LARC	Biolsi, L.	NSG 1369	3407
12	UNIV OF NEW MEXICO	Dietrich, J. W.	JSC	Keil, K.	NGL 32-004-063	3570
12	UNIV OF NOTRE DAME	Jaffe, R. L.	ARC	Huo, W. M.	NCC 2-147	2615
12	UNIV OF PITTSBURGH	Watson, R. T.	HQ-EE	Kaufman, F.	NGR 39-011-161	4308
12	UNIV OF SANTA CLARA	Lawless, J. E.	ARC	Sweeney, M. A.	NCA 2-685005	1951
12	UNIV OF SANTA CLARA	Chang, S.	ARC	White, D. H.	NCA 2-685006	1952
12	UNIV OF SANTA CLARA	Chang, S.	ARC	White, D. H.	NCC 2-166	1966
12	UNIV OF SANTA CLARA	Lawless, J. G.	ARC	Sweeney, M.	NCC 2-170	1967
12	UNIV OF SOUTHERN CAL	Langhoff, S. R.	ARC	Segal, G. A.	NAG 2-77	1973
12	UNIV TEXAS-AUSTIN	Bond, V.	JSC	Szebekely, V. G.	NAS 9-15567	4596
12	UNIV TEXAS-EL PASO	Duke, M.	JSC	Hoffer, J. M.	NSG 9062	4662
12	UNIV OF TOLEDO	Stearns, C. A.	LERC	Edwards, J. G.	NSG 3250	4106
12	UNIV OF UTAH	Seng, G. T.	LERC	Ursenbach, W. O.	NAG 3-27	4687
12	UNIV OF UTAH	Devincenzi, D. L.	HQ-EB	Guillory, W. A.	NSG 7516	4701
12	UNIV OF WASHINGTON	Langhoff, S. R.	ARC	Davidson, E. R.	NSG 2365	5035
12	VANDERBILT UNIVERSTY	Johnson, M. H.	MSFC	Lichter, B. D.	NAS 8-34428	4395
12	VIRGINIA COMNWLTH U	Hergenrother, P. M.	LARC	Bass, R. G.	NAG 1-239	4880
12	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NAG 1-127	4899
12	VIRGINIA POLY INST	Young, P. R.	LARC	McNair, H. M.	NAG 1-246	4918
12	VIRGINIA POLY INST	Sykes, G. F.	LARC	McGrath, J. E.	NCC 1-63	4953
12	VIRGINIA POLY INST	Young, P. R.	LARC	Mason, J. G.	NSG 1085	4960
12	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NSG 1124	4961
12	VIRGINIA POLY INST	St Clair, A. K.	LARC	Taylor, L. T.	NSG 1428	4965
12	VIRGINIA POLY INST	St.Clair, T. L.	LARC	Wolfe, J. F.	NSG 1524	4967
12	WAKE FOREST UNIV	Phillips, D. H.	LAHC	Jackels, C. F.	NCC 1-55	3885
12	WESTERN WASHINGTON U	Boese, R. W.	ARC	Wilson, H. M.	NCA 2-862101	5058
12	WESTERN WASHINGTON U	Chackerian, C. C., Jr.	ARC	Wilson, H. W.	NCA 2-862201	5059
12	WORCESTER POLY INST	Devincenzi, D. L.	HQ-EB	Plumb, R. C.	NSG 7392	3221
12	WRIGHT STATE UNIV	Hergenrother, P. M.	LARC	Harris, F. W.	NAG 1-255	4110
12	YALE UNIVERSITY	Kohl, F. J.	LERC	Rosner, D. E.	NSG 3169	2151
12	YALE UNIVERSITY	Devincenzi, D. L.	HQ-EB	Morowitz, H. J.	NAGW 251	2144
13	ALABAMA A&M UNIV	Burns, R. E.	MSFC	Williams, A. C.	NSG 8068	1008
13	ALABAMA A&M UNIV	Carter, C. H.	HQ-LB	Williams, A. C.	NGT 01-001-800	1004
13	ALABAMA A&M UNIV	Carter, C. H.	HQ-LB	George, M. C.	NGT 01-001-801	1005
13	ARIZONA STATE UNIV	Weinberg, I.	LERC	Wang, E. Y.	NAG 3-139	1096
13	ARIZONA STATE UNIV	Mantenieks, M. A.	LERC	Parsons, M. L.	NAG 3-252	1098
13	ARIZONA STATE UNIV	Carter, C. H.	HQ-LB	Moore, C. B.	NGT 03-001-801	1116
13	BOSTON COLLEGE	Barnes, A.	ARC	Feynman, J.	NCC 2-185	2971
13	BOWIE STATE COLLEGE	Caruso, A. J.	GSFC	Bhatia, M. S.	NGR 21-027-010	2797
13	BRIGHAM YOUNG UNIV	Fimmel, R. O.	ARC	Jones, D. E.	NAS 2-7358	4683
13	CALIF INST OF TECH	Chapman, G. T.	ARC	Liepmann, H. W.	NSG 7508	1304
13	CALIF INST OF TECH	Corrigan, J. P.	GSFC	Stone, E. C.	NAS 5-20721	1268
13	CALIF INST OF TECH	Wende, C. D.	GSFC	Garmire, G. P.	NAS 5-25049	1270

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13	CALIF INST OF TECH	Dietrich, J. W.	JSC	Epstein, S.	NGL 05-002-190	1286
13	CALIF INST OF TECH	Dietrich, J. W.	JSC	Albee, A. L.	NGL 05-002-338	1288
13	CALIF INST OF TECH	Dietrich, J. W.	JSC	Tombrello, T. A.	NGR 05-002-333	1292
13	CALIF INST OF TECH	Brinton, H. C.	HQ-EL	Ingersoll, A. P.	NAGW 159	1257
13	CALIF INST OF TECH	Carter, C. H.	HQ-LB	Phillips, T. G.	NGT 05-002-800	1293
13	CAL STATE U-FULLERTN	Erickson, E. F.	ARC	Rubin, R. H.	NCA 2-253101	1318
13	CAL STATE U-FULLERTN	Boese, R. W.	ARC	Nanes, R.	NCA 2-253901	1320
13	CAL STATE U-NRTHRDGE	Chipman, E.	HQ-EZ	Martin, S. F.	NAGW 27	1329
13	CASE WESTERN RESERVE	Kolecki, J. C.	LARC	Mann, J.	NAG 3-217	3910
13	CASE WESTERN RESERVE	Kosmahl, H. G.	LERC	Hazony, D.	NAG 3-24	3890
13	CASE WESTERN RESERVE	Evans, J. C.	LERC	Kapoor, V. J.	NAG 3-80	3897
13	CASE WESTERN RESERVE	Haugland, E. J.	LERC	Segall, B.	NAG 3-267	3923
13	CASE WESTERN RESERVE	Purvis, C. K.	LERC	Gordan, W. L.	NSG 3197	3950
13	CASE WESTERN RESERVE	Sarsfield, L. P.	LERC	Ostrach, S.	NSG 3221	3952
13	CASE WESTERN RESERVE	Schaefer, D. A.	MSFC	Ostrach, S.	NAS 8-33015	3940
13	CATHOLIC UNIVERSITY	Trombka, J. I.	GSFC	Wertz, C.	NSG 5066	2168
13	CATHOLIC UNIVERSITY	McAvoy, N.	GSFC	Kelley, G. L.	NSG 5111	2169
13	CATHOLIC UNIVERSITY	Schmerling, E. R.	HQ-EZ	Whang, Y. C.	NGR 09-005-063	2166
13	CATHOLIC UNIVERSITY	Chipman, E.	HQ-EZ	Whang, Y. C.	NSG 7422	2171
13	CATHOLIC UNIVERSITY	Carter, C. H.	HQ-LB	Wertz, C. W.	NGT 09-005-800	2167
13	CHRISTPHR NEWPRT COL	Byvik, C. E.	LARC	Buoncristiani, A. M.	NSG 1514	4731
13	CITY COLLEGE OF N Y	Lauver, R. W.	LERC	Alfano, R. R.	NAG 3-130	3581
13	CITY U N Y-GRAD SCHL	Temkin, A.	GSFC	Mittleman, M. H.	NSG 5334	3593
13	CLARKSON COL OF TECH	Fripp, A. L.	LARC	Carlson, F.	NSG 1572	3602
13	CLARKSON COL OF TECH	Fallon, R. A.	MSFC	Subramanian, R. S.	NAS 8-32944	3597
13	CLEVELAND STATE UNIV	Weinberg, I.	LERC	Goradia, C.	NAG 3-138	3960
13	CLEVELAND STATE UNIV	Baraona, C. R.	LERC	Goradia, C.	NAG 3-144	3961
13	COLLEGE OF WM & MARY	Stermer, R. L.	LARC	Moriarty, J. A.	NAG 1-33	4733
13	COLLEGE OF WM & MARY	Fripp, A. L.	LARC	Sher, A.	NSG 1653	4750
13	COLORADO STATE UNIV	Exton, R. J.	LARC	She, C. Y.	NSG 1594	2028
13	COLORADO STATE UNIV	Mantenieks, M. A.	LERC	Robinson, R. S.	NAG 3-209	2011
13	COLORADO STATE UNIV	Jones, W. R.	LERC	Spain, I. L.	NAGW 8	2017
13	COLORADO STATE UNIV	Hendricks, R. C.	LERC	Etters, R. D.	NGR 06-002-159	2026
13	COLORADO STATE UNIV	Rawlin, V. K.	LERC	Kaufman, H. R.	NSG 3011	2029
13	COLORADO STATE UNIV	Grier, N. T.	LERC	Kaufman, H. R.	NSG 3196	2031
13	COLUMBIA UNIVERSITY	Jennings, N.	GSFC	Yavarkousky, J. H.	NAS 5-26398	3614
13	CORNELL UNIVERSITY	McCreight, C. R.	ARC	Houck, J. R.	NAG 2-70	3635
13	CORNELL UNIVERSITY	McCreight, C. R.	ARC	Houck, J. R.	NAG 2-177	3638
13	CORNELL UNIVERSITY	Early, L. J.	GSFC	Kintner, P. M.	NAG 5-601	3644
13	CORNELL UNIVERSITY	Conrath, B. J.	GSFC	Gierasch, P. J.	NAS 5-23236	3652
13	CORNELL UNIVERSITY	Brown, G. V.	LERC	Ashcroft, N. W.	NSG 7487	3679
13	CORNELL UNIVERSITY	Butler, D.	HQ-EE	Sudan, R. N.	NAGW 90	3646
13	DARTMOUTH COLLEGE	Cooper, D. M.	ARC	Christy, R. W.	NSG 2397	3465
13	DREXEL UNIVERSITY	Brooks, W. F.	ARC	Acquista, C. A.	NSG 2357	4201
13	DUKE UNIVERSITY	Brooks, W. F.	LARC	Meyer, H.	NAG 2-128	3840
13	FISK UNIVERSITY	Kroes, R. L.	MSFC	Springer, J. M.	NAG 8-10	4355
13	FISK UNIVERSITY	Kroes, R. L.	MSFC	Silberman, E.	NSG 8060	4356
13	FLORIDA A&M UNIV	Temkin, A.	GSFC	Jones, H. W.	NSG 5307	2245
13	GEORGIA INST OF TECH	Whitaker, A. F.	MSFC	Erenga, H. E.	NAS 8-35048	2367
13	GRAMBLING STATE UNIV	Tandberghanssen, E. A.	MSFC	Cross, M. A.	NAG 8-2	2766
13	HAMPTON INSTITUTE	Jalufka, N. W.	LARC	Han, K. S.	NSG 1595	4768
13	HAMPTON INSTITUTE	Carter, C. H.	HQ-LB	Venable, D. D.	NGT 47-020-801	4767
13	HARVARD UNIVERSITY	Reed, E. I.	GSFC	Parkinson, W. H.	NAG 5-144	2995
13	HARVARD UNIVERSITY	Early, L. J.	GSFC	Parkinson, W. H.	NSG 5128	3025
13	HARVARD UNIVERSITY	Reed, E. I.	GSFC	Parkinson, W. H.	NSG 5176	3026
13	HARVARD UNIVERSITY	Snoddy, W. C.	MSFC	Vaiana, G. S.	NAS 8-31374	3011
13	HARVARD UNIVERSITY	Fallon, R. A.	MSFC	Turnbull, D.	NAS 8-32691	3012
13	HARVARD UNIVERSITY	Butler, D. M.	HQ-EE	Rosner, R.	NAGW 79	3002
13	HARVARD UNIVERSITY	Chipman, E.	HQ-EZ	Vaiana, G. S.	NAGW 2	3001
13	HARVARD UNIVERSITY	Chipman, E.	HQ-EZ	Parkinson, W. H.	NGL 22-007-006	3017

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13	HARVARD UNIVERSITY	Chipman, E.	HQ-EZ	Maxwell, A.	NSG 7648	3030
13	HOUSTON BAPTIST UNIV	McCoy, J. E.	JSC	Warren, D. C.	NAG 9-16	4421
13	HOWARD UNIVERSITY	Miller, G. E.	GSFC	Halpern, J. B.	NAG 5-17	2206
13	HOWARD UNIVERSITY	Osantowski, J. F.	GSFC	Catchings, R. M.	NAG 5-79	2209
13	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Tsang, T.	NAG 5-156	2210
13	HOWARD UNIVERSITY	Alcorn, G. E.	GSFC	Harris, G. L.	NSG 5158	2231
13	JOHNS HOPKINS UNIV	Fowler, W. S.	GSFC	Fastie, W. G.	NAS 5-25358	2812
13	JOHNS HOPKINS UNIV	Lynch, J. T.	HQ-EE	Krimigis, S. M.	NAGW 154	2808
13	JOHNS HOPKINS UNIV	Lynch, J. T.	HQ-EE	Potemra, T. A.	NSG 7055	2827
13	JOHNS HOPKINS UNIV	Carter, C. H.	HQ-LB	Phillips, O.	NGT 21-001-980	2822
13	JOHNS HOPKINS UNIV	Carter, C. H.	HQ-LB	Judd, B. R.	NGT 21-001-981	2823
13	LEHIGH UNIVERSITY	Moore, W. W., Jr.	MSFC	Van Derhoff, J. W.	NAS 8-32951	4209
13	MASS INST OF TECH	Ogilvie, K. W.	GSFC	Lazarus, A. J.	NAS 5-27261	3114
13	MASS INST OF TECH	Chang, F.	JSC	Montgomery, D. B.	NAS 9-16571	3126
13	MASS INST OF TECH	Hardin, J. C.	LARC	Young, J. E.	NAG 1-12	3033
13	MASS INST OF TECH	Bailey, M. C.	LARC	Hollister, W. M.	NAG 1-100	3038
13	MASS INST OF TECH	Katzberg, S. J.	LARC	Freed, C.	NAG 1-164	3041
13	MASS INST OF TECH	Brooks, T. F.	LARC	Harris, W. L.	NSG 1583	3156
13	MASS INST OF TECH	Terdan, F. F.	LERC	Holm, H.	NAG 3-283	3068
13	MASS INST OF TECH	De Loach, A. C.	MSFC	Sullivan, J. D.	NAS 8-33137	3119
13	MASS INST OF TECH	Lynch, J. T.	HQ-EE	Bridge, H. S.	NAGW 165	3094
13	MASS INST OF TECH	Mayr, H. G.	HQ-EZ	Bridge, H. S.	NGL 22-009-015	3135
13	MASS INST OF TECH	Carter, C. H.	HQ-LB	Lewin, W.	NGT 22-009-902	3151
13	MIAMI UNIVERSITY	Deyoung, R. J.	LARC	Wells, W. E.	NCC 1-12	3990
13	MICHIGAN STATE UNIV	Chipman, E.	HQ-EZ	Stein, R. F.	NSG 7293	3234
13	MISSISSIPPI STATE U	Nachtwey, D. S.	JSC	Rundel, R.	NAS 9-16273	3371
13	NEW MEX ST U-LAS CR	Krishen, K.	JSC	Carver, K.	NAS 9-16092	3556
13	NEW MEX ST U-LAS CR	Brinton, H. C.	HQ-EL	Beebe, R. F.	NAGW 167	3552
13	NEW YORK UNIVERSITY	Boggess, N. W.	HQ-EZ	Glassgold, A. E.	NGR 33-016-196	3703
13	N CAR CENTRAL UNIV	McAvoy, N.	GSFC	Jones, C. R.	NSG 5120	3854
13	N CAR CENTRAL UNIV	Kendall, B. M.	LARC	Jones, C. R.	NAG 1-187	3853
13	NO CAROLINA STATE U	Miller, W. E.	LARC	Bedair, S. M.	NAG 1-285	3859
13	NO CAROLINA STATE U	Meador, W. E.	LARC	Hassan, H. A.	NCC 1-54	3873
13	NO CAROLINA STATE U	Meador, W. E.	LARC	Hassan, H. A.	NSG 1058	3875
13	NO CAROLINA STATE U	Long, E. R., Jr.	LARC	Fornes, R. E.	NSG 1562	3877
13	NORTHWESTERN UNIV	Chamis, C. C.	LERC	Nemat-nasser, S.	NAG 3-134	2448
13	OHIO STATE UNIV	Boese, R. W.	ARC	Rao, K. N.	NSG 2175	4025
13	OKLAHOMA STATE UNIV	Seiner, J. M.	LARC	McLaughlin, D. K.	NAG 1-10	4115
13	OLD DOMINION UNIV	Fowler, W. B.	GSFC	Becher, J.	NSG 5289	4839
13	OLD DOMINION UNIV	Lebel, P. J.	LARC	Copeland, G. E.	NAG 1-1	4771
13	OLD DOMINION UNIV	Holmes, H. K.	LARC	Zuckerwar, A. J.	NAG 1-15	4772
13	OLD DOMINION UNIV	Holmes, H. K.	LARC	Becher, J. E.	NAG 1-142	4783
13	OLD DOMINION UNIV	Holmes, H. K.	LARC	Becker, J.	NAG 1-234	4793
13	OLD DOMINION UNIV	Browell, E. V.	LARC	Copeland, G. E.	NCC 1-32	4808
13	OLD DOMINION UNIV	Melfi, L. T., Jr.	LARC	Brock, F. J.	NSG 1271	4821
13	OLD DOMINION UNIV	Wilson, J. W.	LARC	Harries, W. L.	NSG 1568	4832
13	OREGON GRADUATE CTR	McKenzie, R. L.	ARC	Elliott, R. A.	NSG 2387	4143
13	OREGON GRADUATE CTR	Carter, C. H.	HQ-LB	Elliott, R. A.	NGT 38-014-800	4142
13	OREGON STATE UNIV	Dietrich, J. W.	JSC	Schmitt, R. A.	NGL 38-002-039	4156
13	PENN STATE U-UNIV PK	Spencer, N. W.	GSFC	Nisbet, J. S.	NSG 5212	4281
13	PENN STATE U-UNIV PK	Staskus, J. V.	LERC	Robinson, J. W.	NSG 3166	4272
13	PENN STATE U-UNIV PK	Staskus, J. V.	LERC	Kendall, B. R.	NSG 3301	4277
13	PENN STATE U-UNIV PK	Lynch, J. T.	HQ-EZ	Nisbet, J. S.	NGL 39-009-003	4282
13	PENN STATE U-UNIV PK	Carter, C. H.	HQ-LB	Nisbet, J. S.	NGT 39-009-800	4264
13	PENN STATE U-UNIV PK	Carter, C. H.	HQ-LB	Usher, P. D.	NGT 39-009-804	4268
13	PENN STATE U-UNIV PK	Carter, C. H.	HQ-LB	Alexander, S. S.	NGT 39-009-805	4269
13	POLY INST OF NY	Hedin, A. E.	HQ-EZ	Gross, S. H.	NAGW 51	3712
13	POLY INST OF NY	Benson, R. F.	HQ-EZ	Gross, S. H.	NAGW 284	3713
13	PRINCETON UNIVERSITY	McKenzie, R. L.	ARC	Miles, R. B.	NSG 2366	3526
13	PRINCETON UNIVERSITY	Williams, J. T.	GSFC	York, D. G.	NSG 5277	3530

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13	PRINCETON UNIVERSITY	Chai, A. T.	LERC	Saville, D. A.	NAG 3-259	3496
13	PRINCETON UNIVERSITY	Taylor, T. C.	HQ-EP	Ostriker, J. P.	NAGW 120	3505
13	RENSSELAER POLY-NY	Meador, W. E.	LARC	Lichenstein, R. M.	NSG 1628	3749
13	RENSSELAER POLY-NY	Jones, W. R., Jr.	LERC	Lauer, J. L.	NSG 3170	3750
13	RICE UNIVERSITY	Taylor, H. A., Jr.	GSFC	Cloutier, P. A.	NAS 5-23338	4441
13	RICE UNIVERSITY	Mumma, M. J.	GSFC	Chamberlain, J. W.	NGT 44-006-800	4453
13	RICE UNIVERSITY	Konradi, A.	JSC	Bernstein, W.	NAS 9-16672	4448
13	RICE UNIVERSITY	Talley, D. H.	MSFC	Anderson, H. R.	NAS 8-33771	4444
13	RICE UNIVERSITY	Lynch, J. T.	HQ-EE	Dessler, A. J.	NAGW 166	4438
13	RICE UNIVERSITY	Lynch, J. T.	HQ-EE	Hill, T. W.	NAGW 168	4439
13	RICE UNIVERSITY	Lynch, J. T.	HQ-EE	Wolf, R. A.	NGL 44-006-012	4450
13	RICE UNIVERSITY	Lynch, J. T.	HQ-EE	Reiff, P. H.	NGR 44-006-137	4452
13	RICE UNIVERSITY	Carter, C. H.	HQ-LB	Bernstein, W.	NGT 44-006-801	4454
13	SO UNIV & A&M COL-BR	Munafu, P. M.	MSFC	Mohanty, R. C.	NAG 8-4	2780
13	STANFORD UNIVERSITY	Brooks, W. F.	ARC	Fairbanks, W. M.	NAG 2-62	1421
13	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Bershader, D.	NAG 2-172	1430
13	STANFORD UNIVERSITY	Caroff, L. J.	ARC	Petrosian, V.	NCA 2-745008	1483
13	STANFORD UNIVERSITY	Arnold, J. O.	ARC	Heinemann, K.	NCC 2-46	1509
13	STANFORD UNIVERSITY	Chackerians, C.	ARC	Byer, R. L.	NCC 2-50	1510
13	STANFORD UNIVERSITY	Arnold, J. O.	ARC	Heinemann, K.	NCC 2-111	1526
13	STANFORD UNIVERSITY	Kittel, P.	ARC	Geballe, T. H.	NCC 2-120	1528
13	STANFORD UNIVERSITY	Cooper, D. M.	ARC	Tiller, W. A.	NCC 2-125	1529
13	STANFORD UNIVERSITY	Early, L. J.	GSFC	Banks, P. M.	NAG 5-611	1447
13	STANFORD UNIVERSITY	Fellerman, K. D.	GSFC	Helliwell, R. A.	NAS 5-24409	1463
13	STANFORD UNIVERSITY	Wales, R. O.	GSFC	Wilcox, J. M.	NAS 5-24420	1464
13	STANFORD UNIVERSITY	Early, L. J.	GSFC	Walker, A. B.	NSG 5131	1562
13	STANFORD UNIVERSITY	Chai, A. T.	LERC	Hesselink, L.	NAG 3-261	1438
13	STANFORD UNIVERSITY	Potter, R. A.	MSFC	Everitt, C. W.	NAS 8-32355	1471
13	STANFORD UNIVERSITY	Butler, D. M.	HQ-EE	Sturrock, P. A.	NAGW 92	1451
13	STANFORD UNIVERSITY	Lynch, J. T.	HQ-EE	Helliwell, R. A.	NAGW 164	1454
13	STANFORD UNIVERSITY	Lynch, J. T.	HQ-EE	Spreiter, J. R.	NAGW 278	1457
13	STANFORD UNIVERSITY	Benson, R. F.	HQ-EE	Helliwell, R. A.	NGL 05-020-008	1540
13	STANFORD UNIVERSITY	Brinton, H. C.	HQ-EL	Eshleman, V. R.	NAGW 152	1453
13	STANFORD UNIVERSITY	Chipman, E. C.	HQ-EZ	Sturrock, P. A.	NGL 05-020-272	1544
13	STANFORD UNIVERSITY	Chipman, E.	HQ-EZ	Tyler, G. L.	NSG 7552	1567
13	STANFORD UNIVERSITY	Carter, C. H.	HQ-LB	Petrosian, V.	NGT 05-020-804	1557
13	STATE U NY-BINGHAMTN	Carter, C. H.	HQ-LB	Wu, F. T.	NGT 33-188-802	3779
13	STATE U NY-STONY BRK	Ramaty, R.	GSFC	Forman, M. A.	NAS 5-26395	3800
13	STATE U NY-STONY BRK	Dietrich, J. W.	JSC	Lindsley, D. H.	NGL 33-015-130	3806
13	STATE U NY-STONY BRK	Dietrich, J. W.	JSC	Papike, J. J.	NSG 9044	3818
13	STATE U NY-STONY BRK	Brinton, H. C.	HQ-EL	Caldwell, J. J.	NAGW 160	3794
13	TALLADEGA COLLEGE	Whitten, R. C.	ARC	Chu, K. S.	NSG 2217	1015
13	TEXAS A&M UNIVERSITY	Yu, J. C.	LARC	Morrison, G. L.	NAG 1-112	4470
13	UNIV ALA-BIRMINGHAM	Hoover, R. B.	MSFC	Shealy, D. L.	NGT 8-34728	1028
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-31170	1035
13	UNIV ALA-HUNTSVILLE	Krupnick, A. C.	MSFC	Staton, B. G.	NAS 8-31293	1036
13	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Hendricks, J. B.	NAS 8-32818	1037
13	UNIV ALA-HUNTSVILLE	Theiss, J. M.	MSFC	Rush, J. E.	NAS 8-33731	1047
13	UNIV ALA-HUNTSVILLE	Fishman, G. J.	MSFC	Gregory, J.	NAS 8-33975	1052
13	UNIV ALA-HUNTSVILLE	Chappell, C. R.	MSFC	Comfort, R. H.	NAS 8-33982	1055
13	UNIV ALA-HUNTSVILLE	Reeves, F. A.	MSFC	Workman, G. L.	NAS 8-34530	1060
13	UNIV ALA-HUNTSVILLE	Lehoczky, S. L.	MSFC	Holland, L. R.	NAS 8-34957	1065
13	UNIV ALA-HUNTSVILLE	Green, J. L.	MSFC	Horwitz, J. L.	NGT 01-002-082	1067
13	UNIV ALA-HUNTSVILLE	Chipman, E.	HQ-EZ	Wu, S. T.	NAGW 9	1031
13	UNIV ALA-HUNTSVILLE	Chipman, E. G.	HQ-EZ	Emslite, G.	NAGW 294	1033
13	UNIV ALA-HUNTSVILLE	Carter, C. H.	HQ-LB	Horowitz, J. L.	NGT 01-002-804	1070
13	UNIV ALA-HUNTSVILLE	Carter, C. H.	HQ-LB	Horowitz, J. L.	NGT 01-008-800	1072
13	UNIV ALA-HUNTSVILLE	Carter, C. H.	HQ-LB	Horowitz, J. L.	NGT 01-008-801	1073
13	UNIV ALA-HUNTSVILLE	Carter, C. H.	HQ-LB	Gregory, J. C.	NGT 01-008-802	1074
13	UNIV ALASKA-FAIRBNKS	O'brien, J.	GSFC	Rees, M. H.	NAS 5-26868	1082

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13	UNIV ALASKA-FAIRBNKS	Spencer, N. W.	GSFC	Rees, M. H.	NSG 5219	1088
13	UNIV OF ARIZONA	Cressy, P. J., Jr.	GSFC	Slater, P. N.	NAG 5-196	1138
13	UNIV OF ARIZONA	O'brien, J.	GSFC	Sonett, C. P.	NAS 5-26869	1177
13	UNIV OF ARIZONA	Lynch, J. T.	HQ-EE	Hood, L. L.	NAGW 157	1155
13	UNIV OF ARIZONA	Mayr, H. G.	HQ-EZ	Hsieh, K. C.	NGR 03-002-107	1195
13	UNIV OF ARIZONA	Lynch, J. T.	HQ-EZ	Sonett, C. P.	NSG 7024	1208
13	UNIV OF ARIZONA	Carter, C. H.	HQ-LB	Larson, H. P.	NGT 03-002-801	1203
13	UNIV CALIF-BERKELEY	Kittel, P.	ARC	Richards, P. L.	NAG 2-102	1570
13	UNIV CALIF-BERKELEY	Barnes, A.	ARC	Anderson, K. A.	NCC 2-105	1637
13	UNIV CALIF-BERKELEY	Kowalski, G. E.	GSFC	Anderson, K. A.	NAS 5-20079	1603
13	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Heckman, H. H.	NAS 5-20995	1604
13	UNIV CALIF-BERKELEY	O'brien, J. J.	GSFC	Mozer, F. S.	NAS 5-26847	1613
13	UNIV CALIF-BERKELEY	O'brien, J. J.	GSFC	Lin, R. P.	NAS 5-26855	1614
13	UNIV CALIF-BERKELEY	Dietrich, J. W.	JSC	Reynolds, J. H.	NGL 05-003-409	1648
13	UNIV CALIF-BERKELEY	Sachse, G. W.	LARC	Chiao, R. Y.	NSG 1637	1661
13	UNIV CALIF-BERKELEY	Anderson, L. M.	LERC	Gustafson, T. K.	NAG 3-88	1572
13	UNIV CALIF-BERKELEY	Chai, A. T.	LERC	Concus, K.	NAG 3-146	1576
13	UNIV CALIF-BERKELEY	Butler, D. M.	HQ-EE	Hudson, M. K.	NAGW 75	1594
13	UNIV CALIF-BERKELEY	Bogges, N. W.	HQ-EZ	Richards, P. L.	NAGW 369	1599
13	UNIV CALIF-BERKELEY	Chipman, E. G.	HQ-EZ	Lin, R. P.	NSG 7527	1671
13	UNIV CALIF-IRVINE	Anderson, L. M.	LERC	Mills, D. L.	NAG 3-250	1691
13	UNIV CALIF-IRVINE	Anderson, L. M.	LERC	Ushioda, S.	NAG 3-322	1692
13	UNIV CALIF-IRVINE	Butler, D.	HQ-EE	Vanhoven, G.	NAGW 93	1693
13	UNIV CALIF-IRVINE	Chipman, E.	HQ-EZ	Van Hoven, G.	NSG 7375	1699
13	UNIV CALIF-L ANGELES	Kowalski, G. E.	GSFC	Russell, C. T.	NAS 5-20064	1727
13	UNIV CALIF-L ANGELES	Bullock, G.	GSFC	Coroniti, F. V.	NAS 5-25039	1728
13	UNIV CALIF-L ANGELES	O'brien, J. J.	GSFC	Russell, C. T.	NAS 5-26846	1731
13	UNIV CALIF-L ANGELES	O'brien, J. J.	GSFC	McPherron, R.	NAS 5-26852	1732
13	UNIV CALIF-L ANGELES	O'brien, J. J.	GSFC	Ashour-abdalla G, M.	NAS 5-26871	1733
13	UNIV CALIF-L ANGELES	Dietrich, J. W.	JSC	Kerridge, J. F.	NGR 05-007-289	1750
13	UNIV CALIF-L ANGELES	Rice, E. J.	LERC	Charwat, A. F.	NSG 3236	1760
13	UNIV CALIF-L ANGELES	Butler, D. M.	HQ-EE	Abdulla, M. A.	NAGW 78	1714
13	UNIV CALIF-L ANGELES	Lynch, J. T.	HQ-EE	Walker, R. J.	NAGW 162	1718
13	UNIV CALIF-L ANGELES	Lynch, J. T.	HQ-EE	Siscoe, G. L.	NAGW 333	1721
13	UNIV CALIF-L ANGELES	Chipman, E. C.	HQ-EZ	Ulrich, R. K.	NSG 7407	1774
13	UNIV CALIF-SAN DIEGO	Early, L. J.	GSFC	Torbert, R. B.	NAG 5-610	1791
13	UNIV CALIF-SAN DIEGO	Ramaty, R.	GSFC	Lingenfelter, R. E.	NAS 5-26668	1812
13	UNIV CALIF-SAN DIEGO	O'brien, J. J.	GSFC	Mclwain, C. E.	NAS 5-26854	1813
13	UNIV CALIF-SAN DIEGO	Purvis, C. K.	LERC	Whipple, E. C.	NAG 3-320	1783
13	UNIV CALIF-SAN DIEGO	DeLoach, A. C.	MSFC	Svestka, Z.	NAS 8-32984	1819
13	UNIV CALIF-SAN DIEGO	Lynch, J. T.	HQ-EE	Fillius, W.	NAGW 336	1804
13	UNIV CALIF-SAN DIEGO	Kaluzienski, L. J.	HQ-EZ	Peterson, L. E.	NGL 05-005-003	1828
13	UNIV CALIF-SAN DIEGO	Wiskerchen, M. J.	HQ-EZ	Mclwain, C. E.	NGL 05-005-007	1830
13	UNIV CALIF-SAN DIEGO	Chipman, E.	HQ-EZ	Peterson, L. E.	NSG 7161	1846
13	UNIV CALIF-SAN DIEGO	Chipman, E.	HQ-EZ	Canfield, R. C.	NSG 7406	1849
13	UNIV CALIF-S BARBARA	Brooks, W. F.	ARC	Vanyo, J.	NAG 2-27	1888
13	UNIV CALIF-S BARBARA	McKenzie, R. L.	ARC	Colson, W. B.	NAG 2-48	1889
13	UNIV OF CHICAGO	Wales, R. O.	GSFC	Meyer, P.	NAS 5-20674	2478
13	UNIV OF CHICAGO	Davis, M. A.	GSFC	Simpson, J. A.	NAS 5-24430	2479
13	UNIV OF CHICAGO	Dietrich, J. W.	JSC	Anders, E.	NGL 14-001-167	2492
13	UNIV OF CHICAGO	Dietrich, J. W.	JSC	Smith, J. V.	NGL 14-001-171	2494
13	UNIV OF CINCINNATI	Kolecki, J.	LERC	Jackson, H.	NAG 3-128	4060
13	UNIV COLORADO-BOLDR	Ramaty, R.	GSFC	Zweibel, E. G.	NAS 5-26535	2079
13	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Rottman, G. T.	NSG 5178	2094
13	UNIV COLORADO-BOLDR	Jalufka, N. W.	LARC	Leone, S. R.	NAG 1-170	2038
13	UNIV COLORADO-BOLDR	Butler, D. M.	HQ-EE	Dulk, G. A.	NAGW 91	2061
13	UNIV COLORADO-BOLDR	Brinton, H. C.	HQ-EL	Hord, C. W.	NAGW 155	2062
13	UNIV COLORADO-BOLDR	Brinton, H. C.	HQ-EL	West, R. A.	NAGW 156	2063
13	UNIV COLORADO-BOLDR	Chipman, E.	HQ-EZ	Linsky, J. L.	NGL 06-003-057	2088
13	UNIV COLORADO-BOLDR	Chipman, E.	HQ-EZ	Dulk, G. A.	NSG 7287	2101

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13	UNIV COLORADO-BOLDR	Chipman, E.	HQ-EZ	Thomas, R. N.	NSG 7291	2102
13	UNIV COLORADO-BOLDR	Weiler, E. J.	HQ-EZ	Timothy, J. G.	NSG 7459	2103
13	UNIV COLORADO-BOLDR	Chipman, E.	HQ-EZ	Smith, D. F.	NSG 7507	2104
13	UNIV COLORADO-BOLDR	Chipman, E.	HQ-EZ	Gebbie, K. B.	NSG 7511	2105
13	UNIV OF DAYTON	Holmes, H. K.	LARC	Harris, J. S.	NAG 1-143	4079
13	UNIV OF DENVER	Fogle, V.	MSFC	Plooster, M. N.	NAS 8-34604	2120
13	UNIV OF DENVER	Lynch, J. T.	HQ-EE	Patel, V. L.	NAGW 158	2113
13	UNIV DIST COLUMBIA	Mentall, J. E.	GSFC	Morgan, H. D.	NSG 5192	2238
13	UNIV OF FLORIDA	Deyoung, R. J.	LARC	Schneider, R. T.	NAG 1-135	2268
13	UNIV OF FLORIDA	Meador, W. E.	LARC	Ohrn, N. Y.	NAG 1-178	2270
13	UNIV OF HAWAII-MANOA	DeLoach, A. C.	MSFC	Heasley, J. N.	NAS 8-33219	2415
13	UNIV OF HAWAII-MANOA	Brinton, H. C.	HQ-EL	Pilcher, C. B.	NAGW 153	2408
13	UNIV OF HAWAII-MANOA	Boyce, J. M.	HQ-EL	Morrison, D.	NSG 7633	2432
13	UNIV OF HAWAII-MANOA	Chipman, E.	HQ-EZ	Jefferies, J. T.	NSG 7536	2429
13	UNIV HOUSTON-HOUSTON	Early, L. J.	GSFC	Sheldon, W. R.	NAG 6-18	4540
13	UNIV HOUSTON-HOUSTON	Rathz, T. J.	MSFC	Chu, C. W.	NAS 8-34955	4546
13	UNIV HOUSTON-CL LAKE	Dietrich, J. W.	JSC	Blanford, G. E.	NSG 9043	4565
13	UNIV ILLINOIS-URBANA	Jalufka, N. W.	LARC	Miley, G. H.	NSG 1547	2540
13	UNIV ILLINOIS-URBANA	Deyoung, R. J.	LARC	Verdeyen, J. T.	NSG 1609	2541
13	UNIV ILLINOIS-URBANA	Lynch, J. T.	HQ-EE	Liu, C. H.	NASW 3646	2535
13	UNIV OF IOWA	Corrigan, J. P.	GSFC	Gurnett, D. A.	NAS 5-20093	2660
13	UNIV OF IOWA	Fellerman, K. D.	GSFC	Frank, L. A.	NAS 5-24293	2661
13	UNIV OF IOWA	Fellerman, K. D.	GSFC	Shawhan, S. D.	NAS 5-24294	2662
13	UNIV OF IOWA	Heppner, J. P.	GSFC	Gurnett, D. A.	NAS 5-24336	2663
13	UNIV OF IOWA	Gemmell, J. D.	GSFC	Frank, L. A.	NAS 5-25530	2664
13	UNIV OF IOWA	O'brien, J.	GSFC	Shawhan, S. D.	NAS 5-26843	2672
13	UNIV OF IOWA	O'brien, J.	GSFC	Gurnett, D. A.	NAS 5-26857	2673
13	UNIV OF IOWA	Sovey, J. S.	LERC	Carpenter, R. T.	NAG 3-206	2648
13	UNIV OF IOWA	Guynes, B. V.	MSFC	Shawhan, S.	NAS 8-33770	2676
13	UNIV OF IOWA	Lynch, J. T.	HQ-EE	Calvert, W.	NAGW 256	2654
13	UNIV OF IOWA	Benson, R. F.	HQ-EE	Grabbe, C. L.	NAGW 364	2656
13	UNIV OF IOWA	Lynch, J. T.	HQ-EZ	Van Allen, J. A.	NGL 16-001-002	2677
13	UNIV OF IOWA	Lynch, J. T.	HQ-EZ	Gurnett, D. A.	NGL 16-001-043	2678
13	UNIV OF KANSAS	Schmugge, T.	GSFC	Kanemasy, E. T.	NAS 5-27191	2714
13	UNIV OF KANSAS	Purvis, C. K.	LERC	Enoch, J.	NSG 3290	2734
13	UNIV OF KANSAS	Benson, R. F.	HQ-EE	Armstrong, T. P.	NAGW 289	2709
13	UNIV MARYLAND-COL PK	Ramaty, R.	GSFC	Chang, C. C.	NAG 5-135	2850
13	UNIV MARYLAND-COL PK	Early, L. J.	GSFC	Moore, J.	NAG 5-169	2852
13	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Coplan, M. A.	NAG 5-244	2859
13	UNIV MARYLAND-COL PK	Corrigan, J. P.	GSFC	Gloeckler, G.	NAS 5-20062	2877
13	UNIV MARYLAND-COL PK	Conrath, B. J.	GSFC	Hanel, R. A.	NAS 5-23237	2878
13	UNIV MARYLAND-COL PK	Ramaty, R.	GSFC	Eichler, D.	NAS 5-26582	2887
13	UNIV MARYLAND-COL PK	Dombrowski, M.	GSFC	Wilkerson, T. D.	NAS 5-26654	2891
13	UNIV MARYLAND-COL PK	O'brien, J. J.	GSFC	Gloeckler, G.	NAS 5-26856	2895
13	UNIV MARYLAND-COL PK	O'brien, J. J.	GSFC	Papadopoulos, K.	NAS 5-26870	2896
13	UNIV MARYLAND-COL PK	Hoffman, R. A.	GSFC	Coplan, M. A.	NGR 21-002-291	2917
13	UNIV MARYLAND-COL PK	Teegarden, B. J.	GSFC	Gloeckler, G.	NGR 21-002-316	2918
13	UNIV MARYLAND-COL PK	Heaps, W. S.	GSFC	McIlrath, T. J.	NSG 5313	2945
13	UNIV MARYLAND-COL PK	Singh, J. J.	LARC	Weber, J.	NAG 1-151	2839
13	UNIV MARYLAND-COL PK	Decher, R.	MSFC	Weber, J.	NAG 8-15	2865
13	UNIV MARYLAND-COL PK	Watson, R. T.	HQ-EB	Ginter, M. L.	NSG 7340	2953
13	UNIV MARYLAND-COL PK	Butler, D. M.	HQ-EE	Papadopoulos, K.	NAGW 81	2872
13	UNIV MARYLAND-COL PK	Chipman, E. C.	HQ-EZ	Gloeckler, G.	NAGW 101	2873
13	UNIV MARYLAND-COL PK	Chipman, E.	HQ-EZ	Kundu, M. R.	NGR 21-002-199	2915
13	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Gloeckler, G.	NGT 21-002-803	2924
13	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Ellis, R. F.	NGT 21-002-813	2934
13	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Adler, I.	NGT 21-002-814	2935
13	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Park, R. L.	NGT 21-002-816	2937
13	UNIV MICH-ANN ARBOR	Fellerman, K. D.	GSFC	Hays, P. B.	NAS 5-24296	3279
13	UNIV MICH-ANN ARBOR	Branchflower, W.	GSFC	Nagy, A. F.	NAS 5-25038	3283

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13	UNIV MICH-ANN ARBOR	Haykin, D.	GSFC	Carignan, G. R.	NAS 5-25158	3286
13	UNIV MICH-ANN ARBOR	Krehbiel, J. P.	GSFC	Carignan, G. R.	NAS 5-25409	3287
13	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G.	NAS 5-25916	3289
13	UNIV MICH-ANN ARBOR	Early, L. J.	GSFC	Sharp, W. E.	NGR 23-005-360	3310
13	UNIV MICH-ANN ARBOR	Fields, S. A.	MSFC	Nagy, A. F.	NAS 8-34533	3301
13	UNIV MICH-ANN ARBOR	Benson, R. F.	HQ-EE	Nagy, A. F.	NGR 23-005-015	3308
13	UNIV MICH-ANN ARBOR	Benson, R. F.	HQ-EE	Samir, U.	NGR 23-005-320	3309
13	UNIV OF MINN-DULUTH	Shook, D.	LERC	Sydor, M.	NAG 3-165	3329
13	U MINN-MNPLS-ST PAUL	Brooks, W. F.	ARC	Scriven, L. E.	NAG 2-63	3335
13	U MINN-MNPLS-ST PAUL	Early, L. J.	GSFC	Winckler, J. R.	NSG 5088	3354
13	U MINN-MNPLS-ST PAUL	Early, L. J.	GSFC	Kellogg, P. J.	NSG 5373	3355
13	U MINN-MNPLS-ST PAUL	Dietrich, J. W.	JSC	Pepin, R. O.	NGL 24-005-225	3349
13	U MINN-MNPLS-ST PAUL	Rice, E. J.	LERC	Lambert, R. F.	NAG 3-161	3336
13	UNIV MO-ROLLA	Fogle, V.	MSFC	Hagen, D. E.	NAS 8-34603	3402
13	UNIV MO-ROLLA	Fallon, R. A.	MSFC	Day, D. E.	NAS 8-34758	3403
13	UNIV NEBRASKA-LINCLN	Weinberg, I.	LERC	Wooliam, J. A.	NAG 3-120	3439
13	UNIV NEW HAMP-DURHAM	Ogilvie, K. W.	GSFC	Hollweg, J. V.	NAG 5-130	3468
13	UNIV NEW HAMP-DURHAM	Trainor, J. H.	GSFC	Webber, W. R.	NAS 5-24354	3475
13	UNIV NEW HAMP-DURHAM	Butler, D. M.	HQ-EE	Fisk, L. A.	NAGW 76	3472
13	UNIV NEW HAMP-DURHAM	Chipman, E.	HQ-EZ	Fisk, L. A.	NSG 7411	3484
13	UNIV OF NOTRE DAME	Groenewga, J.	LERC	Atassi, H.	NSG 3195	2618
13	UNIV OREGON-EUGENE	Brooks, W.	ARC	Donnelly, R.	NAG 2-7	4161
13	UNIV OREGON-EUGENE	Warner, J. L.	JSC	Weill, D. F.	NGL 38-003-022	4165
13	UNIV OF PACIFIC	Lee, G.	ARC	Perry, R. L.	NCA 2-588001	1930
13	UNIV OF PITTSBURGH	Cooper, D. M.	ARC	Jordan, K. D.	NSG 2407	4309
13	UNIV OF PITTSBURGH	Early, L. J.	GSFC	Zipf, E. C.	NAG 5-609	4298
13	UNIV OF PITTSBURGH	Kostiuk, T.	GSFC	Falk, J.	NAS 5-25013	4301
13	UNIV OF ROCHESTER	Stallcop, J. R.	ARC	George, T. F.	NSG 2198	3833
13	UNIV OF ROCHESTER	Chipman, E. G.	HQ-EZ	Thomas, J. H.	NSG 7562	3835
13	UNIV SAN FRANCISCO	Peck, E. E.	JSC	Benton, E. V.	NAS 9-15337	1939
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-26758	1936
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-34340	1937
13	UNIV OF SANTA CLARA	Whitten, R. C.	ARC	McCormick, P. T.	NCA 2-685906	1958
13	UNIV OF SANTA CLARA	McKenzie, R. L.	ARC	Perkins, P. E.	NCC 2-117	1963
13	UNIV OF SOUTHERN CAL	Early, L. J.	GSFC	Judge, D. L.	NSG 5108	1999
13	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Broadfoot, L. A.	NAGW 161	1984
13	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Judge, D. L.	NAGW 163	1985
13	UNIV SO MISSISSIPPI	Jones, J. J.	LARC	Rayborn, G. H.	NAG 1-49	3382
13	UNIV TENNESSEE-KNOXV	Maguire, V. C.	GSFC	Daunt, S. J.	NAS 5-26896	4372
13	UNIV TENNESSEE-KNOXV	Jones, L. W.	MSFC	Keefer, D. R.	NAS 8-34320	4377
13	UNIV TEXAS-AUSTIN	Rice, E. J.	LERC	Blackstock, D. T.	NSG 3198	4617
13	UNIV TEXAS-DALLAS	Fellerman, K. D.	GSFC	Heelis, R. A.	NAS 5-24297	4638
13	UNIV TEXAS-DALLAS	Fellerman, K. D.	GSFC	Hanson, W. B.	NAS 5-24298	4639
13	UNIV TEXAS-DALLAS	Fellerman, K. D.	GSFC	Winningham, J. D.	NAS 5-24299	4640
13	UNIV TEXAS-DALLAS	Caporale, A. J.	GSFC	Hanson, W. B.	NAS 5-25310	4641
13	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-32831	4648
13	UNIV TEXAS-EL PASO	Quaide, W. L.	HQ-EL	Lawson, J. O.	NAGW 204	4659
13	UNIV OF TOLEDO	Labus, T. L.	LERC	Dewitt, K. J.	NAG 3-184	4084
13	UNIV OF UTAH	Willshire, W. L., Jr.	LARC	Van Moorhem, W. K.	NAG 1-283	4685
13	UNIV OF UTAH	Lynch, J. T.	HQ-EZ	Sojka, J. J.	NAGW 260	4694
13	UNIV OF VIRGINIA	Beatty, M. E.	LARC	Batchman, T. E.	NSG 1567	4874
13	UNIV OF WASHINGTON	Early, L. E.	GSFC	Holzworth, R. H.	NAG 5-604	4998
13	UNIV OF WASHINGTON	O'brien, J.	GSFC	Parks, G. K.	NAS 5-26850	5022
13	UNIV OF WASHINGTON	Deyoung, R. J.	LARC	Christiansen, W. H.	NAG 1-176	4985
13	UNIV OF WASHINGTON	Mroz, T. S.	LERC	Hertzberg, A.	NAG 3-16	4990
13	UNIV WISC-MADISON	Lynch, J. T.	HQ-EE	Scherb, F.	NGR 50-002-162	5120
13	UTAH STATE UNIV	Early, L. J.	GSFC	Baker, K. D.	NAG 5-603	4703
13	UTAH STATE UNIV	Early, L. J.	GSFC	Raitt, W. J.	NAG 5-607	4704
13	UTAH STATE UNIV	Eiband, A. M.	GSFC	Banks, P. M.	NAS 5-24455	4711
13	UTAH STATE UNIV	Spencer, N. W.	GSFC	St Maurice, J. P.	NSG 5215	4719

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
13	UTAH STATE UNIV	Spencer, N. W.	GSFC	Foster, J. C.	NSG 5216	4720
13	UTAH STATE UNIV	Chappell, C. R.	MSFC	Banks, P. M.	NAS 8-34003	4716
13	UTAH STATE UNIV	Butler, D. M.	HQ-EE	Schunk, R. W.	NAGW 77	4706
13	UTAH STATE UNIV	Taylor, T. C.	HQ-EP	Torr, D. G.	NAGW 119	4708
13	VANDERBILT UNIVERSTY	Jalufka, N. W.	LARC	Lee, J. H.	NCC 1-8	4398
13	VIRGINIA POLY INST	Cantrell, J. H., Jr.	LARC	Claus, R. O.	NAG 1-68	4891
13	VIRGINIA POLY INST	Cantrell, J. H., Jr.	LARC	Claus, R. O.	NAG 1-192	4909
13	VIRGINIA POLY INST	Cantrell, J. H., Jr.	LARC	Claus, R. O.	NAG 1-263	4921
13	VIRGINIA STATE UNIV	Singh, J. J.	LARC	Stronach, C. E.	NSG 1342	4979
13	VIRGINIA STATE UNIV	Wilson, J. W.	LARC	Stronach, C. E.	NSG 1646	4980
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840002	5050
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840102	5051
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840201	5052
13	WASHINGTON ST UNIV	Nelson, H.	ARC	Dickinson, J. T.	NCA 2-840202	5053
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCC 2-69	5054
13	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCC 2-118	5055
13	WASHINGTON UNIVERSTY	Dietrich, J. W.	JSC	Walker, R. M.	NGL 26-008-065	3425
13	WASHINGTON UNIVERSTY	Heyman, J. S.	LARC	Miller, J. G.	NSG 1601	3427
13	WEBER STATE COL	Chipman, E.	HQ-EZ	Tripp, D. A.	NAGW 19	4725
13	YALE UNIVERSITY	Hoppe, J. C.	LARC	Chang, R. K.	NAG 1-37	2139
13	YORK COLLEGE-NY	Pohly, J. G.	HQ-LC	Spergel, M. S.	NSG 7454	3836
19	ARIZONA STATE UNIV	Pollack, J.	ARC	Greeley, R.	NSG 2284	1117
19	ATLANTA UNIVERSITY	Goldstein, M.	LERC	Owen, G. S.	NAG 3-113	2324
19	BOWIE STATE COLLEGE	Mundy, J.	GSFC	Butler, O. B.	NCA 5-97	2794
19	BRIGHAM YOUNG UNIV	Fimmel, R. O.	ARC	Jones, D. E.	NAG 2-145	4681
19	BROOKLYN COLLEGE	Byvik, C. E.	LARC	Tomkiewicz, M.	NAG 1-44	3575
19	CALIF INST OF TECH	Dietrich, J. W.	JSC	Ahrens, T. J.	NSG 9019	1307
19	CALIF INST OF TECH	Chipman, E. G.	HQ-EZ	Zirin, H.	NAGW 255	1264
19	CARNEGIE-MELLON UNIV	Hendricks, H. D.	LARC	Casasent, D.	NAG 1-265	4170
19	CASE WESTERN RESERVE	Smetana, J.	LERC	Collins, R. E.	NAS 3-22342	3937
19	CASE WESTERN RESERVE	Liu, D. C.	LERC	Kapoor, V. J.	NCC 3-18	3944
19	CHRISTPHR NEWPRT COL	Wilson, J. W.	LARC	Chang, C. K.	NSG 1614	4732
19	CLARKSON COL OF TECH	Lauver, M. R.	LERC	Chin, D. T.	NAG 3-238	3596
19	CLARKSON COL OF TECH	Adams, W. R.	MSFC	Wilcox, W. R.	NAS 8-34308	3598
19	CLARKSON COL OF TECH	Moore, W. W., Jr.	MSFC	Wilcox, W. R.	NAS 8-34891	3601
19	COLLEGE OF WM & MARY	Mayr, H. G.	HQ-EZ	Montgomery, D. C.	NSG 7416	4751
19	COLORADO STATE UNIV	Rango, A.	GSFC	Boyne, H. S.	NAG 5-88	2013
19	COLORADO STATE UNIV	Kerslake, W. R.	LERC	Robinson, R. S.	NAG 3-43	2010
19	COLUMBIA UNIVERSITY	Jones, C. T., III	MSFC	Pan, C. H.	NAS 8-34713	3619
19	CORNELL UNIVERSITY	Moseley, S. H.	GSFC	Harwit, M.	NAS 5-26669	3653
19	CORNELL UNIVERSITY	Early, L. J.	GSFC	Kelley, M. C.	NSG 6020	3676
19	DRAKE UNIVERSITY	Fowles, W. W.	MSFC	Kopicky, K. J.	NAS 8-33728	2619
19	GEORGIA INST OF TECH	Goebel, J. H.	ARC	Holah, G.	NCC 2-182	2373
19	HARVARD UNIVERSITY	Gaskins, M. A.	HQ-E	Field, G. B.	NSG 7176	3028
19	HOUSTON BAPTIST UNIV	McCoy, J.	JSC	Warren, D. G.	NSG 9076	4423
19	INDIANA UNIV OF PA	Hoge, F. E.	GSFC	Berry, R. E.	NCC 6-3214	4205
19	IOWA STATE UNIV	Pollack, J. B.	ARC	Iverson, J. D.	NAG 2-151	2623
19	IOWA STATE UNIV	Pollack, J. B.	ARC	Richardson, S. M.	NCC 2-174	2635
19	JOHNS HOPKINS UNIV	Lynch, J. T.	HQ-EZ	Roelof, E. C.	NAGW 264	2809
19	MASS INST OF TECH	Stephanides, C.	GSFC	Shapiro, I. I.	NAS 5-25833	3111
19	MASS INST OF TECH	Pepper, S. V.	LERC	Johnson, K. H.	NCC 3-1	3132
19	MICHIGAN STATE UNIV	Nakanishi, S.	LERC	Asmussen, J.	NAG 3-305	3229
19	MICHIGAN STATE UNIV	Nakanishi, S.	LERC	Asmussen, J.	NSG 3299	3233
19	MICHIGAN TECH UNIV	Reeves, F. A.	MSFC	Hellawell, A.	NAS 8-33727	3240
19	MIDDLEBURY COLLEGE	Wiskerchen, M. J.	HQ-EE	Wolfson, L. T.	NAGW 54	4728
19	MISSISSIPPI STATE U	Powers, W. T.	MSFC	Beiting, J.	NAS 8-34907	3370
19	NEW MEX ST U-LAS CR	Lynch, J. T.	HQ-EZ	Theimer, O. H.	NSG 7622	3564
19	NO CAR A&T STATE U	Hoell, J. M.	LARC	Yu, C.	NAG 1-82	3846
19	NORTH KENTUCKY UNIV	Nakanishi, S.	LERC	Hawkins, C. E.	NAG 3-289	2751
19	NORTHWESTERN UNIV	Williams, J. R.	MSFC	Davis, S. H.	NAS 8-33881	2459

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19	OLD DOMINION UNIV	Ilig, W.	LARC	Goglia, G. L.	NAG 1-219	4790
19	OLD DOMINION UNIV	Wilson, J. W.	LARC	Khandelwal, G. S.	NCC 1-42	4810
19	PENN STATE U-UNIV PK	Early, L. J.	GSFC	Mitchell, J. D.	NAG 6-7	4238
19	PENN STATE U-UNIV PK	Early, L. J.	GSFC	Hale, L. C.	NSG 6004	4282
19	PENN STATE U-UNIV PK	Carter, C. H.	HQ-LB	Carlson, T. N.	NGT 39-009-801	4265
19	PRAIRIE VIEW A&M U	White, W. L.	ARC	Jackson, B. N.	NCA 2-598001	4428
19	PRINCETON UNIVERSITY	Hoppe, J. C.	LARC	Miles, R. B.	NAG 1-152	3488
19	PURDUE UNIVERSITY	Tilg, W.	LARC	Sun, C. T.	NAG 1-222	2570
19	RENSELAER POLY-NY	Liu, D. C.	LERC	Borrego, J. M.	NAG 3-175	3730
19	RICE UNIVERSITY	Early, L. J.	GSFC	Anderson, H. R.	NAG 6-5	4436
19	RICE UNIVERSITY	Kosmahl, H. G.	LERC	Freeman, J. W.	NAG 3-29	4434
19	RICE UNIVERSITY	Benson, R. F.	HQ-EE	Bernstein, W.	NAGW 69	4437
19	SAN DIEGO STATE UNIV	Fimmel, R. O.	ARC	Young, A. T.	NAG 2-92	1339
19	SAN DIEGO STATE UNIV	McKenzie, R. L.	ARC	Massey, G. A.	NAG 2-104	1340
19	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Baganoff, D.	NAG 2-36	1417
19	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Harris, S. E.	NAG 2-44	1419
19	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Hesselink, L.	NAG 2-83	1423
19	STANFORD UNIVERSITY	Rubesin, M. W.	ARC	Ferziger, J. H.	NCC 2-15	1504
19	STANFORD UNIVERSITY	Ostrow, H.	GSFC	MacOvski, A.	NAS 5-25043	1466
19	STANFORD UNIVERSITY	Reeves, F. A.	MSFC	Tiller, W. A.	NAS 8-33110	1473
19	STANFORD UNIVERSITY	Lynch, J. T.	HQ-EE	Crawford, F. W.	NGL 05-020-176	1542
19	TEXAS A&M UNIVERSITY	Nuss, R.	JSC	Blanchard, A. J.	NAS 9-16717	4515
19	TUSKEGEE INSTITUTE	Kerslake, W. R.	LERC	Ray, P. K.	NAG 3-76	1020
19	UNIV ALA-HUNTSVILLE	Ballance, J.	MSFC	Wu, S. T.	NAS 8-33132	1039
19	UNIV ALA-HUNTSVILLE	Carey, W. T.	MSFC	Carter, E.	NAS 8-34187	1058
19	UNIV ALA-HUNTSVILLE	Ballance, J. O.	MSFC	Wu, S. T.	NAS 8-34573	1062
19	UNIV ALA-HUNTSVILLE	Carter, C. H.	HQ-LB	Wu, S. T.	NGT 01-002-081	1066
19	UNIV ALASKA-FAIRBNKS	Early, L. J.	GSFC	Wescott, E. M.	NAG 6-1	1080
19	UNIV ALASKA-FAIRBNKS	Lynch, J. T.	HQ-EE	Akasofu, S. I.	NSG 7447	1091
19	UNIV ALASKA-FAIRBNKS	Mayr, H. G.	HQ-EZ	Swift, D. W.	NAGW 269	1081
19	UNIV ALASKA-FAIRBNKS	Hedin, A. E.	HQ-EZ	Swift, D. W.	NSG 7625	1092
19	UNIV OF ARIZONA	Hansen, Q. M.	ARC	Jacobs, S. F.	NAG 2-64	1128
19	UNIV OF ARIZONA	Fimmel, R. O.	ARC	Hunten, D. M.	NAG 2-143	1131
19	UNIV CALIF-BERKELEY	Bauer, E. H.	ARC	Colwell, R. N.	NCC 2-54	1634
19	UNIV CALIF-BERKELEY	Early, L. J.	GSFC	Mozer, F. S.	NAG 6-10	1584
19	UNIV CALIF-BERKELEY	Lynch, J. T.	HQ-EE	Bowyer, C. S.	NAGW 370	1600
19	UNIV CALIF-BERKELEY	Benson, R. F.	HQ-EE	Anderson, K. A.	NGL 05-003-017	1646
19	UNIV CALIF-BERKELEY	Schmerling, E. R.	HQ-EZ	Hudson, M. R.	NSG 7401	1669
19	UNIV CALIF-DAVIS	Roberson, M. W.	ARC	Kollmann, W.	NCC 2-186	1683
19	UNIV CALIF-L ANGELES	Lynch, J. T.	HQ-EE	Stenzel, R. L.	NAGW 180	1719
19	UNIV CALIF-L ANGELES	Mayr, H. G.	HQ-EZ	Holzer, R. E.	NAGW 74	1713
19	UNIV CALIF-L ANGELES	Benson, R. F.	HQ-EZ	Kennel, C. F.	NGL 05-007-190	1747
19	UNIV CALIF-SAN DIEGO	Fimmel, R. O.	ARC	Fillius, W.	NAG 2-153	1782
19	UNIV CALIF-SAN DIEGO	Scudder, J. D.	GSFC	Fillins, R. W.	NAS 5-27315	1817
19	UNIV CALIF-SAN DIEGO	Welker, J.	GSFC	Goodkind, J. M.	NSG 5331	1842
19	UNIV CALIF-SAN DIEGO	Lynch, J. T.	HQ-EE	Alfven, H.	NSG 7623	1851
19	UNIV CALIF-S BARBARA	Bauer, E. H.	ARC	Estes, J. E.	NCC 2-124	1903
19	UNIV CALIF-S BARBARA	Dietrich, J. W.	JSC	Fuller, M. D.	NSG 9020	1915
19	UNIV COLORADO-BOLDR	Fimmel, R. O.	ARC	Stewart, I. A.	NAS 2-9477	2070
19	UNIV COLORADO-BOLDR	Early, L. J.	GSFC	Barth, C. A.	NSG 5103	2092
19	UNIV OF HAWAII-MANOA	Finley, C. J.	HQ-ER	Berg, E.	NSG 7179	2424
19	UNIV HOUSTON-HOUSTON	Schmerling, E. R.	HQ-EZ	Sheldon, W. R.	NSG 7609	4561
19	UNIV HOUSTON-HOUSTON	Carter, C. H.	HQ-LB	Middleditch, B. S.	NGT 44-005-800	4554
19	UNIV ILLINOIS-URBANA	Fimmel, R. O.	ARC	Fox, J. L.	NAG 2-94	2515
19	UNIV ILLINOIS-URBANA	Early, L. J.	GSFC	Bowhill, S. A.	NGR 14-005-181	2538
19	UNIV ILLINOIS-URBANA	Nussle, R. C.	LERC	Strehlow, R. A.	NAS 3-23770	2530
19	UNIV OF IOWA	Mayr, H. G.	HQ-EZ	Shawhan, S. D.	NAGW 190	2653
19	UNIV OF IOWA	Lynch, J. T.	HQ-EZ	Goertz, C. K.	NSG 7632	2681
19	UNIV OF KANSAS	Nuss, R. W.	JSC	Ulaby, F. T.	NAS 9-16709	2717
19	UNIV OF KANSAS	Lynch, J. T.	HQ-EE	Beard, D. B.	NAGW 217	2708

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19	UNIV OF KANSAS	Hedin, A. E.	HQ-EZ	Beard, D. B.	NAGW 71	2706
19	UNIV OF KANSAS	Mayr, H. G.	HQ-EZ	Beard, D. B.	NAGW 187	2707
19	UNIV MARYLAND-COL PK	Lynch, J. T.	HQ-EZ	Wu, C. S.	NGL 21-002-005	2910
19	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Yeh, R. T.	NGT 21-002-805	2926
19	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Coplan, M. A.	NGT 21-002-810	2931
19	UNIV OF MASS-AMHERST	Fimmel, R. O.	ARC	McGill, G. E.	NAG 2-138	3194
19	UNIV MICH-ANN ARBOR	Miller, F. R.	MSFC	Carignan, G. R.	NAS 8-31987	3297
19	UNIV MICH-ANN ARBOR	Chappell, C. R.	MSFC	Carignan, G. R.	NAS 8-32332	3298
19	UNIV MICH-ANN ARBOR	Jones, C. T.	MSFC	Torr, M. R.	NAS 8-32569	3299
19	U MINN-MNPLS-ST PAUL	Early, L. J.	GSFC	Cahill, L. J.	NAG 6-11	3340
19	U MINN-MNPLS-ST PAUL	Early, L. J.	GSFC	Cahill, L. J.	NSG 6021	3357
19	UNIV NEBRASKA-LINCLN	Liu, D. C.	LERC	Woolam, J. A.	NAG 3-154	3440
19	UNIV NEW HAMP-DURHAM	Early, L. J.	GSFC	Arnoldy, R. L.	NAG 6-12	3470
19	UNIV OF PACIFIC	Lee, G.	ARC	Perry, R. L.	NCA 2-588201	1932
19	UNIV OF PENNSYLVANIA	Singer, J.	LERC	Worrell, W. L.	NSG 3300	4293
19	UNIV OF PITTSBURGH	Early, L. J.	GSFC	Zipt, E. C.	NAG 6-2	4299
19	UNIV OF SANTA CLARA	Whitten, R. C.	ARC	McCormick, P. T.	NCC 2-130	1965
19	UNIV SO CAROLINA-COL	Toll, D. L.	GSFC	Jensen, J. R.	NAS 5-27304	4347
19	UNIV OF SOUTHERN CAL	Fimmel, R. O.	ARC	Kumar, S.	NAG 2-95	1974
19	UNIV OF SOUTHERN CAL	Fimmel, R. O.	ARC	Judge, D. L.	NAG 2-146	1975
19	UNIV STHN COLORADO	Lofgren, G.	JSC	Smith, R. K.	NSG 9051	2127
19	UNIV TENNESSEE-KNOXV	Chai, A. T.	LERC	Parang, M.	NAG 3-239	4369
19	UNIV TENNESSEE-KNOXV	Carter, C. H.	HQ-LB	Hunter, R. H.	NGT 43-001-805	4388
19	UNIV TEXAS-AUSTIN	Stephanides, C. C.	GSFC	Tapley, B.	NAS 5-25991	4587
19	UNIV TEXAS-AUSTIN	Finley, C. J.	HQ-ER	Dorman, J. H.	NSG 7159	4622
19	UNIV TEXAS-DALLAS	Blanchard, R. C.	LARC	Hoffman, J. H.	NAG 1-251	4630
19	UNIV TEXAS-DALLAS	Blanchard, R. C.	LARC	Hoffman, J. H.	NAG 1-256	4631
19	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-31775	4647
19	UNIV TEXAS-DALLAS	Benson, R. F.	HQ-EE	Heikkila, W. J.	NAGW 53	4634
19	UNIV OF UTAH	Snyder, R. V.	GSFC	Staffanson, F. L.	NAG 6-15	4690
19	UNIV WISC-MADISON	Fimmel, R. O.	ARC	Limaye, S. S.	NAG 2-93	5068
19	UNIV WISC-MADISON	Lynch, J. T.	HQ-EZ	Hershkowitz, N.	NAGW 275	5085
19	UTAH STATE UNIV	Early, L. J.	GSFC	Williamson, P. R.	NSG 6027	4721
19	UTAH STATE UNIV	Benson, R. F.	HQ-EZ	Torr, M. R.	NAGW 105	4707
19	VIRGINIA POLY INST	Scott, J. H., Jr.	GSFC	Powell, N. L.	NSG 6030	4977
19	VIRGINIA POLY INST	Scott, J. H., Jr.	GSFC	Powell, N. L.	NSG 6031	4978
19	VIRGINIA POLY INST	Byvik, C. E.	LARC	Finklea, H. O.	NAG 1-89	4894
19	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NAG 1-248	4919
19	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NAG 1-252	4920
19	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NAG 1-252	4920
19	WOODSHOLE OCEAN INST	Hoge, F. E.	GSFC	Evans, G.	NAS 6-3160	3216
19	YALE UNIVERSITY	Fallon, R. A.	MSFC	Nordine, P. C.	NAS 8-34383	2146
21	ATLANTA UNIVERSITY	Fowles, W. W.	MSFC	Martin, B. J.	NAG 8-9	2325
21	BOWIE STATE COLLEGE	Maury, J. L.	GSFC	Srivastava, S.	NGR 21-027-004	2796
21	BROWN UNIVERSITY	Armstrong, E. S.	LARC	Banks, H. T.	NAG 1-258	4317
21	CARNEGIE-MELLON UNIV	Fontaine, M.	HQ-NS	Leinhardt, S.	NASW 3673	4176
21	CLEMSON UNIV-CLEMSON	Lallman, F. J.	LARC	Fennell, R. E.	NAG 1-81	4337
21	COLLEGE OF WM & MARY	Senn, E. H.	LARC	Collins, W. R.	NSG 1435	4747
21	COLORADO STATE UNIV	Lomax, H.	ARC	Thomas, J. W.	NCA 2-165001	2023
21	COLORADO STATE UNIV	Lomax, H.	ARC	Thomas, J. W.	NCA 2-165201	2024
21	COOPER UNION COLLEGE	Evans, J. S.	LARC	Chinitz, W.	NAG 1-18	3630
21	DUKE UNIVERSITY	Ford, W. E.	LERC	Smith, D. A.	NSG 3160	3844
21	EASTERN ILLINOIS U	Goorjian, P. M.	ARC	Dev, S. K.	NCA 2-207101	2436
21	HAMPTON INSTITUTE	Haigler, G. W.	LARC	Shan, S. N.	NCC 1-7	4764
21	IOWA STATE UNIV	Shoosmith, J. N.	LARC	Feinberg, R. B.	NSG 1538	2641
21	LEHIGH UNIVERSITY	Crews, J. H., Jr.	LARC	Erdogan, F.	NGR 39-007-011	4212
21	MISSISSIPPI STATE U	Smith, R. E., Jr.	LARC	Thompson, J. F.	NSG 1577	3379
21	MOREHOUSE COLLEGE	Campbell, W.	MSFC	Bozeman, R. E.	NAG 8-3	2388
21	NEW YORK UNIVERSITY	Warming, R. F.	ARC	Harten, A.	NCA 2-525101	3700
21	NEW YORK UNIVERSITY	Warming, R. F.	ARC	Harten, A.	NCA 2-525201	3701
21	NEW YORK UNIVERSITY	South, J. C., Jr.	LARC	Garabedian, P. R.	NSG 1579	3706

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21	NO CAROLINA STATE U	Wilhite, A. W.	LARC	Perkins, J. N.	NCC 1-49	3872
21	OHIO STATE UNIV	Baumbilk, R. J.	LERC	Collins, S. A., Jr.	NSG 3302	4033
21	OLD DOMINION UNIV	Harris, J. E.	LARC	Lakin, W. D.	NAG 1-25	4774
21	OLD DOMINION UNIV	Dagenhart, J. R.	LARC	Lakin, W. D.	NAG 1-175	4785
21	OLD DOMINION UNIV	Wornom, S. F.	LARC	Dorrepaal, J. M.	NAG 1-197	4789
21	OLD DOMINION UNIV	Schiess, J. R.	LARC	Smith, P. L.	NAG 1-223	4791
21	OLD DOMINION UNIV	Dagenhart, J. R.	LARC	Lakin, W. D.	NAG 1-297	4797
21	OREGON STATE UNIV	Lomax, H.	ARC	Jespersen, D. C.	NCA 2-586001	4153
21	QUEENSBOROUGH COMM C	Montgomery, T. D.	DFRF	Scalzo, F.	NAG 4-6	3720
21	QUEENSBOROUGH COMM C	Mackall, D. A.	DFRF	Scalzo, F.	NAG 4-9	3721
21	RENSELAER POLY-NY	Barker, L. K.	LARC	Shen, C. N.	NAG 1-61	3724
21	ST LOUIS UNIVERSITY	Carter, C. H.	HQ-LB	Fuelberg, H. E.	NGT 26-006-800	3386
21	SAN JOSE STATE UNIV	Jinkerson, J. H.	ARC	Wang, J. C.	NCC 2-83	1387
21	SOUTHERN METHODIST U	Houston, G.	JSC	Gray, H. L.	NAS 9-16438	4464
21	UNIV CALIF-BERKELEY	Warming, R. F.	ARC	Majda, A.	NCA 2-50101	1625
21	UNIV CALIF-BERKELEY	Carter, C. H.	HQ-LB	Shu, F. H.	NGT 05-003-800	1658
21	UNIV CALIF-DAVIS	Meyer, G.	ARC	Borges, C. R.	NCA 2-180201	1677
21	UNIV CALIF-L ANGELES	Goorjian, P.	ARC	Osher, S.	NCA 2-390002	1739
21	UNIV OF FLORIDA	Haigler, G. W.	LARC	Edwards, B. H.	NAG 1-39	2266
21	UNIV OF GEORGIA	Toll, D.	GSFC	Jensen, J. R.	NAS 5-26129	2391
21	UNIV ILLINOIS-URBANA	Foudriat, E. C.	LARC	Campbell, R. H.	NSG 1471	2539
21	UNIV OF NEW ORLEANS	Lambiotte, J. J., Jr.	LARC	Ioup, G. E.	NSG 1648	2787
21	UNIV OF SOUTHERN CAL	Jaffee, R. L.	ARC	Segal, G. A.	NSG 2351	1998
21	UNIV TENNESSEE-KNOXV	Smith, R. E.	LARC	Baker, A. J.	NAG 1-32	4361
21	UNIV TEXAS-AUSTIN	Krishen, K.	JSC	Griffin, C. R.	NAS 9-16171	4599
21	WALLA WALLA COLLEGE	Schmidt, R.	GSFC	Heisler, R.	NAS 5-25994	5046
21	WESTERN ILLINOIS U	Peebles, S. W.	LARC	McBride, W. E.	NAG 1-42	2548
21	WICHITA STATE UNIV	Smith, J. M.	LERC	Greywall, M. S.	NSG 3186	2744
21	XAVIER UNIV-LA	Wood, G. M.	LARC	Ioup, J. W.	NAG 1-16	2789
22	ALABAMA A&M UNIV	Weisskopf, M. C.	MSFC	Williams, A. C.	NAS 8-34591	1003
22	ARIZONA STATE UNIV	Krosel, S. M.	LERC	O'grady, E. P.	NAG 3-112	1095
22	BOWIE STATE COLLEGE	Truszkowski, W. F.	GSFC	Srivastava, S.	NAS 5-27366	2793
22	CAL POLY ST U-S LUIS	Piazza, J. E.	ARC	Morgan, D. E.	NCA 2-678101	1314
22	CAL STATE U-FULLERTN	Tobias, L.	ARC	Dear, R. G.	NCA 2-253801	1319
22	CLEVELAND STATE UNIV	Schulte, R. R.	LERC	Megargle, R.	NAG 3-254	3969
22	COLLEGE OF WM & MARY	Harris, J. L.	LARC	Feyock, S.	NAG 1-62	4734
22	COLLEGE OF WM & MARY	Foudriat, E. C.	LARC	Feyock, S.	NSG 1626	4749
22	COLLEGE OF WM & MARY	Arpasi, D. J.	LERC	Feyock, S.	NAG 3-232	4739
22	DUKE UNIVERSITY	Salley, G. C.	LARC	Smith, C. U.	NAG 1-165	3838
22	FORT LEWIS COLLEGE	Fischer, J. R.	GSFC	Bell, G. W.	NAG 5-162	2036
22	GEORGE WASHINGTON U	Truszoski, W. F.	GSFC	Sibert, J. L.	NAS 5-26797	2182
22	GEORGE WASHINGTON U	Speray, D. E.	LARC	Foley, J. D.	NAG 1-185	2176
22	MASS INST OF TECH	Stevens, K. G.	ARC	Dennis, J. B.	NCA 2-425101	3128
22	MASS INST OF TECH	Shoosmith, J. N.	LARC	Moses, J.	NSG 1323	3152
22	MISSISSIPPI STATE U	Emens, F. H.	MSFC	Ingels, F. M.	NAS 8-34906	3369
22	OLD DOMINION UNIV	Foudriat, E. C.	LARC	Knapper, R. J.	NAG 1-47	4775
22	PENN STATE U-UNIV PK	Dottavio, C. L.	GSFC	Turner, B.	NAS 5-26166	4243
22	RICE UNIVERSITY	Jost, J.	JSC	Gordon, W. E.	NAS 9-16732	4449
22	SO UNIV & A&M COL-BR	Weaver, A.	HQ-NS	Willard, M.	NASW 3344	2782
22	STANFORD UNIVERSITY	Beam, R. M.	ARC	Oligier, J.	NCA 2-745004	1480
22	STANFORD UNIVERSITY	Stevens, K. G.	ARC	Owicki, S. S.	NCA 2-745102	1485
22	STANFORD UNIVERSITY	Paddack, S. J.	GSFC	Blinford, T. O.	NAG 5-261	1446
22	STATE UNIV NY-BUFFAL	Foudriat, E. C.	LARC	Wittie, L. D.	NAG 1-249	3781
22	ST UNIV SYSTM OF FLA	Harrison, J.	HQ-ET	Unavailable	NASW 3351	2280
22	TEXAS A&M UNIVERSITY	Brown, I. D.	JSC	Sielken, R. L.	NAS 9-13894	4501
22	TEXAS A&M UNIVERSITY	Browne, I. D.	JSC	Heilman, J.	NAS 9-14689	4502
22	TEXAS A&M UNIVERSITY	Pels, G. F.	JSC	Jean, R.	NAS 9-16403	4508
22	TEXAS A&M UNIVERSITY	Whitehead, V. S.	JSC	McFarland, M. J.	NAS 9-16556	4511
22	TOWSON STATE UNIV	Smith, P. H.	GSFC	Grant, J. H.	NAG 5-267	2834
22	TUSKEGEE INSTITUTE	Barker, L. K.	LARC	Bales, J. W.	NAG 1-31	1016

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
22	UNIV ALA-HUNTSVILLE	Juergensen, K.	MSFC	Shiva, S. G.	NAS 8-33096	1038
22	UNIV ALA-HUNTSVILLE	Green, J. L.	MSFC	Horwitz, J. L.	NAS 8-34534	1061
22	UNIV CALIF-L ANGELES	Raby, J. S.	ARC	Karplus, W. J.	NAG 2-41	1703
22	UNIV CALIF-L ANGELES	Milner, E. J.	LERC	Ercegovac, M. D.	NAG 3-132	1706
22	UNIV CALIF-S BARBARA	Carter, C. H.	HQ-LB	Dozier, J.	NGT 05-010-801	1908
22	UNIV DIST COLUMBIA	Purves, L. R.	GSFC	Finley, G. T.	NAG 5-91	2234
22	UNIV OF GEORGIA	Harrison, J. O.	HQ-LG	Brugh, R. L.	NASW 3247	2392
22	UNIV ILLINOIS-URBANA	Schaefer, D. H.	GSFC	Slotnick, D. L.	NAS 5-26405	2532
22	UNIV ILLINOIS-URBANA	Senn, E. H.	LARC	Campbell, R. H.	NAG 1-138	2512
22	UNIV OF IOWA	Lupton, A. O.	LARC	Robinson, J. P.	NAG 1-195	2645
22	UNIV OF LOUISVILLE	Isley, W.	GSFC	Shelton, R. D.	NAS 5-26504	2761
22	UNIV OF MAINE-ORONO	Imhoff, M.	GSFC	Byther, T.	NAS 5-26574	2791
22	UNIV MARYLAND-COL PK	Wallgren, K.	GSFC	Rieger, C. J.	NAG 5-99	2848
22	UNIV MARYLAND-COL PK	Smith, P. H.	GSFC	Jacobs, B. E.	NAG 5-235	2858
22	UNIV MARYLAND-COL PK	Dalton, J. T.	GSFC	Agrawala, A. K.	NAS 5-26649	2889
22	UNIV MARYLAND-COL PK	Nelson, R. W.	GSFC	Yeh, R. T.	NAS 5-26814	2894
22	UNIV MARYLAND-COL PK	Schneck, P. B.	GSFC	Yeh, R. T.	NAS 5-27378	2898
22	UNIV MARYLAND-COL PK	Barker, L. K.	LARC	Minker, J.	NAG 1-51	2838
22	UNIV OF MASS-AMHERST	Senn, E. H.	LARC	Wileden, J. C.	NAG 1-115	3191
22	UNIV MICH-ANN ARBOR	Bauschlicher, C. W.	ARC	Calahan, D. A.	NCC 2-201	3306
22	UNIV MICH-ANN ARBOR	Butler, R. W.	LARC	Shin, K. G.	NAG 1-296	3245
22	UNIV OF PACIFIC	Goorjian, P. M.	ARC	Topp, W.	NCA 2-588203	1934
22	UNIV OF PITTSBURGH	Bivins, R. G.	HQ-LG	McWilliams, P. A.	NASW 3403	4302
22	UNIV OF SANTA CLARA	Jones, H. W., Jr.	ARC	Alkhatib, H.	NCA 2-685102	1955
22	UNIV SOUTHWESTERN LA	Lupton, A. O.	LARC	Kavi, K. M.	NAG 1-271	2788
22	UNIV TEXAS-AUSTIN	Schiess, J. R.	LARC	Cline, A. K.	NAG 1-79	4567
22	UNIV TEXAS-AUSTIN	Shipman, F. S.	LARC	Browne, J. C.	NSG 1446	4615
22	UNIV OF TOLEDO	Schulte, R. R.	LERC	Solarek, D. J.	NAG 3-123	4092
22	UNIV OF VIRGINIA	Lupton, A. O.	LARC	Pratt, T. W.	NAG 1-233	4844
22	UNIV OF VIRGINIA	Shoosmith, J. N.	LARC	Ortega, J. M.	NAG 1-242	4845
22	UNIV OF VIRGINIA	Senn, E. H.	LARC	Reynolds, P. F.	NAG 1-260	4846
22	UNIV OF WASHINGTON	Salley, G. C.	LARC	Erickson, W. J.	NAS 1-17108	5018
22	VIRGINIA POLY INST	Edge, J. T.	JSC	Nehl, T. W.	NAS 9-16281	4947
29	CALIF INST OF TECH	Durbin, P. A.	LERC	Saffman, P. G.	NAG 3-179	1240
29	CARLETON UNIVERSITY	Connors, M. M.	ARC	George, D. A.	NCA 2-103101	5147
29	CASE WESTERN RESERVE	Steinberg, R.	LERC	Parke, F. I.	NAG 3-101	3900
29	CLEVELAND STATE UNIV	Leibecki, H. F.	LERC	Heines, T. S.	NAG 3-162	3964
29	COLUMBIA UNIVERSITY	Smith, R. E.	LARC	Eiseman, P. R.	NCC 1-59	3823
29	DUKE UNIVERSITY	Bavuso, S. J.	LARC	Trivedi, K. S.	NAG 1-70	3837
29	DUKE UNIVERSITY	Fulton, R. E.	LARC	Loendorf, D. D.	NAG 1-218	3839
29	GEORGE MASON UNIV	Larsen, R. L.	GSFC	Heckel, R. W.	NAG 5-148	4754
29	GEORGE MASON UNIV	Ondrus, P. J.	GSFC	Greenland, A.	NAS 5-27255	4756
29	GEORGE WASHINGTON U	Migneault, G. E.	LARC	Miller, D. R.	NAG 1-179	2175
29	KENT STATE UNIV-KENT	Chamis, C. C.	LERC	Wang, P. S.	NAG 3-298	3983
29	MARQUETTE UNIVERSITY	Hinton, D. E.	LARC	Nigro, N. J.	NAG 1-65	5062
29	MASS INST OF TECH	Nagel, D. C.	ARC	Simpson, R.	NAS 2-11232	3105
29	MISSISSIPPI STATE U	Graves, R. A.	HQ-RT	Thompson, J. F.	NASW 3552	3372
29	NORFOLK STATE UNIV	Shoosmith, J. N.	LARC	Deloatch, S. J.	NAS 1-16361	4769
29	NORFOLK STATE UNIV	Shoosmith, J. N.	LARC	Deloatch, S. J.	NAS 1-16921	4770
29	NO CAROLINA STATE U	Speray, D. E.	LARC	McAllister, D. F.	NAG 1-103	3856
29	NORTHWESTERN UNIV	Olsen, G. C.	LARC	Liu, W. K.	NAG 1-210	2446
29	PRAIRIE VIEW A&M U	Deboo, G. J.	ARC	Fuller, J. H.	NCA 2-598101	4427
29	PRAIRIE VIEW A&M U	Matsuhira, D. S.	ARC	Yeh, H. Y.	NCA 2-598102	4428
29	PRAIRIE VIEW A&M U	Brown, R. C., Jr.	ARC	Emanuel, E.	NCA 2-598103	4429
29	PRAIRIE VIEW A&M U	Camisa, J. T.	ARC	Knighton, T. G.	NCA 2-598104	4430
29	SAN DIEGO STATE UNIV	Schy, A. A.	LARC	Rao, S. S.	NAG 1-275	1338
29	STANFORD UNIVERSITY	Sorenson, R. L.	ARC	Steger, J. L.	NCC 2-129	1531
29	STANFORD UNIVERSITY	Olsen, G. C.	LARC	Hughes, T. J.	NAG 1-259	1413
29	STEVENS INST OF TECH	Dagenhart, J. R.	LARC	Salwen, H.	NAG 1-213	3545
29	TEXAS A&M UNIVERSITY	Sykes, D.	JSC	Simmons, D. B.	NCC 9-2	4522

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29	TUSKEGEE INSTITUTE	Hogge, J. E.	LARC	Hargrove, A.	NAG 1-172	1018
29	UNIV ALA-HUNTSVILLE	Green, J. L.	MSFC	Horwitz, J. L.	NAS 8-34129	1056
29	UNIV ALA-HUNTSVILLE	Thompson, W. E.	MSFC	Chan, C. H.	NAS 8-34711	1063
29	UNIV CALIF-BERKELEY	Wade, L.	JSC	Colwell, R. N.	NAS 9-16413	1619
29	UNIV CALIF-L ANGELES	Warming, R.	ARC	Osher, S.	NCA 2-390202	1740
29	UNIV OF CONNECTICUT	Park, S. K.	LARC	Roulier, J. A.	NAG 1-153	2128
29	UNIV OF DAYTON	Cagliostro, D. E.	ARC	Engler, N. A.	NAS 2-11184	4082
29	UNIV DIST COLUMBIA	Warren, L. S.	HQ-U	Darby, A. J.	NASW 3689	2235
29	UNIV OF IDAHO	Miller, W. H.	GSFC	Maki, G. K.	NAG 5-93	2433
29	UNIV ILLINOIS-URBANA	Hankins, W. W.	LARC	Chien, R. T.	NAG 1-288	2514
29	UNIV ILLINOIS-URBANA	Hankins, W. W.	LARC	Chien, R. T.	NCC 1-52	2536
29	UNIV OF KANSAS	Peterson, D. L.	ARC	Martinko, E. A.	NAG 2-201	2692
29	UNIV TEXAS-AUSTIN	Pels, G. F.	JSC	Griffin, C. R.	NAS 9-16104	4598
29	UNIV TEXAS-AUSTIN	Alexander, J. D.	JSC	Griffin, C. R.	NAS 9-16208	4600
29	UNIV TEXAS-AUSTIN	Bond, V.	JSC	Broucke, R.	NAS 9-16221	4601
29	UNIV TEXAS-AUSTIN	Kessler, D. J.	JSC	Szebehely, V. G.	NAS 9-16348	4603
29	UNIV TEXAS-AUSTIN	Krishen, K.	JSC	Tucker, A. J.	NAS 9-16437	4604
29	UNIV TEXAS-AUSTIN	Pels, G. F.	JSC	Griffin, C. R.	NAS 9-16497	4605
29	VIRGINIA POLY INST	Argentiero, P. R.	GSFC	Haralick, R.	NAS 5-26276	4946
29	VIRGINIA POLY INST	Migneault, G. E.	LARC	Armstrong, J. R.	NAG 1-174	4907
31	ARIZONA STATE UNIV	Alexander, M. B.	MSFC	Logan, E., Jr.	NAS 8-32357	1110
31	ARIZONA STATE UNIV	Alexander, M. B.	MSFC	Logan, E., Jr.	NAS 8-34318	1112
31	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Greeley, R.	NSG 7548	1122
31	AUBURN UNIV-AUBURN	Shackelford, B.	MSFC	Foster, W.	NAS 8-33886	1013
31	AUGSBURG COLLEGE	Spencer, N. W.	GSFC	Engebretson, M. J.	NSG 5285	3328
31	BOSTON UNIVERSITY	Guynes, B. V.	MSFC	Mendillo, M.	NAS 8-32844	2978
31	BROWN UNIVERSITY	Oseorff, H.	GSFC	Hermance, J. F.	NAS 5-26138	4320
31	CALIF INST OF TECH	Cherrix, G. T.	GSFC	Ingersoll, A. P.	NAS 5-22965	1269
31	CALIF INST OF TECH	Stouffer, C.	GSFC	Zirin, H.	NAS 5-27269	1274
31	CALIF INST OF TECH	Hansen, J. E.	GSFC	Yung, Y. L.	NSG 5301	1297
31	CALIF INST OF TECH	Donley, J. L.	GSFC	Zirin, H.	NSG 5327	1298
31	CALIF INST OF TECH	Brinton, H. C.	HQ-EL	Hughes, W. J.	NAGW 58	1253
31	CALIF INST OF TECH	Murphy, R. E.	HQ-EL	Farmer, C. B.	NAGW 223	1262
31	CALIF INST OF TECH	Brinton, H. C.	HQ-EL	Yung, Y. L.	NAGW 313	1266
31	CALIF INST OF TECH	Brinton, H. C.	HQ-EL	Yung, Y. L.	NSG 7376	1303
31	CAL STATE U-FULLERTN	Murphy, R. E.	HQ-EL	Ryan, J. A.	NSG 7614	1322
31	CAL STATE U-NRTHRDGE	Wende, C.	GSFC	Martin, S. F.	NSG 5324	1330
31	CAL STATE U-NRTHRDGE	Wende, C.	GSFC	Chapman, G. A.	NSG 5330	1331
31	CAL STATE U-NRTHRDGE	Wende, C.	GSFC	Chapman, G. A.	NSG 5333	1332
31	CITY COLLEGE OF N Y	Hansen, J. E.	GSFC	Spar, J.	NGR 33-013-086	3587
31	CITY U N Y-GRAD SCHL	Alexander, M. B.	MSFC	Teher, C. M.	NAS 8-34622	3592
31	CLARKSON COL OF TECH	Fowles, W. W.	MSFC	Hyun, J.	NAS 8-34750	3599
31	CLEMSON UNIV-CLEMSON	Thiele, O. W.	GSFC	Ulbrich, C. W.	NAG 5-232	4339
31	CLEMSON UNIV-CLEMSON	Rodgers, E. B.	GSFC	Gentry, R. C.	NSG 5349	4344
31	CLEMSON UNIV-CLEMSON	Wexler, R.	GSFC	Gentry, R. C.	NSG 5350	4345
31	COLLEGE OF WM & MARY	Sullivan, E. M.	LARC	Rinsland, C. P.	NCC 1-3	4741
31	COLLEGE OF WM & MARY	Sullivan, E. M.	LARC	Rinsland, C. P.	NCC 1-16	4742
31	COLLEGE OF WM & MARY	Sullivan, E. M.	LARC	Rinsland, C. P.	NCC 1-43	4744
31	COLLEGE OF WM & MARY	Seals, R. K.	LARC	Rinsland, C. P.	NCC 1-61	4745
31	COLORADO STATE UNIV	King, M. D.	GSFC	McKee, T. B.	NAG 5-58	2012
31	COLORADO STATE UNIV	Shukla, J.	GSFC	Stevens, D. E.	NAG 5-136	2014
31	COLORADO STATE UNIV	Heymsfield, G. M.	GSFC	Cotton, W. R.	NSG 5341	2032
31	COLORADO STATE UNIV	Curran, R. J.	GSFC	Cox, S. K.	NSG 5357	2033
31	COLORADO STATE UNIV	Harrison, E. F.	LARC	Vonderhaar, T. H.	NAS 1-15580	2018
31	COLORADO STATE UNIV	Hall, J. B.	LARC	Vonderhaar, T. H.	NAS 1-16465	2019
31	COLUMBIA UNIVERSITY	Oseroff, H.	GSFC	Labrecque, J. L.	NAS 5-25891	3612
31	COLUMBIA UNIVERSITY	Travis, L.	GSFC	Brocken, W. S.	NCC 5-16	3624
31	COLUMBIA UNIVERSITY	West, G. S.	MSFC	Balachandran, N. K.	NAS 8-33378	3618
31	CORNELL UNIVERSITY	Pollack, J. B.	ARC	Burns, J. A.	NCA 2-175001	3657
31	CORNELL UNIVERSITY	Chandra, S.	HQ-EE	Farley, D. T.	NAGW 362	3651

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31	CORNELL UNIVERSITY	Brinton, H. C.	HQ-EL	Sagan, C.	NGL 33-010-082	3660
31	CORNELL UNIVERSITY	Brinton, H. C.	HQ-EL	Gierasch, P. J.	NGL 33-010-186	3662
31	CORNELL UNIVERSITY	Brinton, H. C.	HQ-EL	Gierasch, P. J.	NSG 7612	3686
31	DREXEL UNIVERSITY	Farlow, N. H.	ARC	Friend, J. P.	NAG 2-10	4186
31	DREXEL UNIVERSITY	Kyle, H. L.	GSFC	House, F. B.	NAS 5-26794	4194
31	DREXEL UNIVERSITY	Holland, A. C.	GSFC	Bandy, A. R.	NSG 6007	4202
31	DREXEL UNIVERSITY	Fuller, W. H.	LARC	Friend, J. P.	NAG 1-200	4182
31	DREXEL UNIVERSITY	Fuller, W. H.	LARC	Friend, J. P.	NAGW 84	4191
31	DREXEL UNIVERSITY	Sullivan, E. M.	LARC	House, F. B.	NAS 1-14393	4192
31	DREXEL UNIVERSITY	Hall, J. B., Jr.	LARC	House, F. B.	NAS 1-16428	4193
31	DREXEL UNIVERSITY	Allario, F.	LARC	Abbas, M. M.	NCC 1-33	4197
31	DREXEL UNIVERSITY	Smith, G. L.	LARC	House, F. B.	NSG 1545	4199
31	DREXEL UNIVERSITY	Wilson, G. S.	MSFC	S'cnafer, A.	NAS 8-34833	4195
31	DUKE UNIVERSITY	Watson, R. T.	HQ-EB	Delucia, F. C.	NSG 7540	3845
31	EMMANUAL COL-MASS	Spencer, N. W.	GSFC	Basu, S.	NSG 5419	2992
31	FLORIDA STATE UNIV	Susskind, J.	GSFC	Krishnamurti, T. N.	NAG 5-6	2250
31	FLORIDA STATE UNIV	Watson, R. T.	HQ-EB	Hunt, R. H.	NASW 3522	2253
31	FLORIDA STATE UNIV	Watson, R. T.	HQ-EE	Hunt, R. H.	NSG 7473	2257
31	FLORIDA STATE UNIV	Brinton, H. C.	HQ-EL	Hess, S. L.	NSG 7629	2258
31	FURMAN UNIVERSITY	Mayr, H. G.	GSFC	Porter, H. S.	NAG 5-97	4346
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NCC 1-19	2187
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NCC 1-39	2191
31	GEORGE WASHINGTON U	Smith, G. L.	LARC	Liebowitz, H.	NSG 1555	2199
31	GEORGIA INST OF TECH	Young, R. E.	ARC	Alyea, F. N.	NCC 2-9	2371
31	GEORGIA INST OF TECH	Margozzi, A. P.	ARC	Grams, G. W.	NSG 2363	2380
31	GEORGIA INST OF TECH	Reber, C. A.	GSFC	Cunnold, D. M.	NAS 5-26304	2358
31	GEORGIA INST OF TECH	Levine, D. M.	GSFC	Wilson, B. J.	NAS 5-26586	2360
31	GEORGIA INST OF TECH	Donley, J.	GSFC	Cunnold, D.	NAS 5-27264	2362
31	GEORGIA INST OF TECH	Browell, E. V.	LARC	Davis, D. D.	NAG 1-50	2333
31	GEORGIA INST OF TECH	Reichle, H. G.	LARC	Chameides, W. L.	NAG 1-85	2334
31	GEORGIA INST OF TECH	Harris, R. C.	LARC	Black, M. S.	NAG 1-167	2336
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Grams, G. W.	NAS 1-16356	2350
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Cunnold, D. M.	NAS 1-16357	2351
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Cunnold, D. M.	NAS 1-17150	2355
31	GEORGIA INST OF TECH	McMaster, L. R.	LARC	Grams, G. W.	NSG 1493	2375
31	GEORGIA INST OF TECH	Master, L. R.	LARC	Cunnold, D. M.	NSG 1643	2377
31	GEORGIA INST OF TECH	Bozek, J. M.	LERC	Combes, R. S.	NAG 3-195	2345
31	HAMPTON INSTITUTE	Whitlock, C. H.	LARC	Venable, D. D.	NAG 1-87	4760
31	HARVARD UNIVERSITY	Bullock, G. D.	GSFC	McElroy, M. B.	NAS 5-24134	3005
31	HARVARD UNIVERSITY	Sing, M. L.	GSFC	Parkinson, W. H.	NAS 5-26557	3007
31	HARVARD UNIVERSITY	Ballance, C. W.	GSFC	Anderson, J. G.	NAS 6-3061	3009
31	HARVARD UNIVERSITY	Fishman, J.	LARC	McElroy, M. B.	NAG 1-55	2993
31	HARVARD UNIVERSITY	Seals, R. K.	HQ-EB	Anderson, J. G.	NASW 3242	3014
31	HARVARD UNIVERSITY	Chandra, S.	HQ-EB	McElroy, M. B.	NSG 2031	3023
31	HARVARD UNIVERSITY	Murphy, R. E.	HQ-EL	Goody, R. M.	NGL 22-007-228	3019
31	HARVARD UNIVERSITY	Boggess, N. W.	HQ-EZ	Parkinson, W. H.	NSG 7304	3029
31	HOUSTON BAPTIST UNIV	Robbins, D. E.	JSC	Warren, D. C.	NAG 9-13	4420
31	IOWA STATE UNIV	Pollack, J. B.	ARC	Grossman, A. S.	NCA 2-340002	2631
31	IOWA STATE UNIV	Shukla, J.	GSFC	Chen, T. C.	NAG 5-104	2625
31	JACKSON STATE UNIV	Miller, G. E.	GSFC	Perkins, J.	NAG 5-158	3360
31	JOHNS HOPKINS UNIV	Susskind, J.	GSFC	Phillips, O. M.	NAG 5-200	2806
31	JOHNS HOPKINS UNIV	Bullock, G. D.	GSFC	Doering, J. P.	NAS 5-11415	2811
31	KANSAS STATE UNIV	Browne, I. D.	JSC	Papike, J. J.	NAS 9-14899	2682
31	KEARNEY STATE COL	Patterson, A. E.	JSC	Glasser, M. E.	NAS 9-16162	3437
31	LEHIGH UNIVERSITY	Boese, R. W.	ARC	Lovejoy, R. W.	NCA 2-380201	4211
31	LA ST U&A&M COL-BRGE	Murphy, R. E.	HQ-EL	Henry, J. W.	NAGW 48	2770
31	MASS INST OF TECH	Whitten, R. C.	ARC	Prinn, R. G.	NSG 2010	3157
31	MASS INST OF TECH	Susskind, J.	GSFC	Staelin, D. H.	NAG 5-10	3072
31	MASS INST OF TECH	Shukla, J.	GSFC	Eagleson, P. S.	NAG 5-134	3079
31	MASS INST OF TECH	Shukla, J.	GSFC	Stone, P. H.	NAG 5-137	3080

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31	MASS INST OF TECH	Halem, M.	GSFC	Stone, P. H.	NGR 22-009-727	3146
31	MASS INST OF TECH	Rind, D.	GSFC	Stone, P. H.	NSG 5113	3171
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J. G.	NSG 5166	3172
31	MASS INST OF TECH	Reichle, H. G.	LARC	Newell, R. E.	NAG 1-92	3036
31	MASS INST OF TECH	Reichle, H. G., JR.	LARC	Newell, R. E.	NAG 1-292	3044
31	MASS INST OF TECH	Stokes, J. W.	MSFC	Miller, R. H.	NAS 8-34501	3121
31	MASS INST OF TECH	Murphy, R. E.	HQ-EL	Elliot, J. E.	NAGW 68	3092
31	MASS INST OF TECH	Brinton, H. C.	HQ-EL	Lewis, J. S.	NGL 22-009-521	3138
31	MASS INST OF TECH	Ando, K.	HQ-EL	Binsack, J. H.	NSG 7638	3181
31	MOREHOUSE COLLEGE	Chandra, S.	HQ-EB	Hall, J. H., Jr.	NAGW 259	2387
31	MORGAN STATE UNIV	Laughlin, C. R.	GSFC	Knox, N.	NAG 5-14	2829
31	MORGAN STATE UNIV	Duncan, C. H.	GSFC	Oliver, F. W.	NSG 5401	2833
31	NEW MEX INST MINING	Vaughan, O. H.	MSFC	Brooks, M.	NAS 8-33817	3548
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Isaacson, E.	NSG 5034	3708
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Ghil, M.	NSG 5130	3709
31	NO CAROLINA STATE U	Heppner, J. P.	GSFC	Manring, E. R.	NAS 5-26510	3867
31	OHIO STATE UNIV	Chandra, S.	HQ-EB	Shaw, J. H.	NSG 7479	4037
31	OKLAHOMA STATE UNIV	Tuyahov, A. J.	HQ-EL	Walsh, S. J.	NSG 7640	4125
31	OLD DOMINION UNIV	Suttles, J. T.	LARC	Tiwari, S. N.	NAG 1-21	4773
31	OLD DOMINION UNIV	Harriss, R. C.	LARC	Kindle, E. C.	NAG 1-266	4795
31	OLD DOMINION UNIV	Orr, H. D.	LARC	Kindle, E. C.	NCC 1-2	4804
31	OLD DOMINION UNIV	Browell, E. V.	LARC	Kindle, E. C.	NCC 1-28	4806
31	OLD DOMINION UNIV	Levine, J. S.	LARC	Tiwari, S. N.	NCC 1-30	4807
31	OREGON GRADUATE CTR	Reichle, H. G.	LARC	Rasmussen, R. A.	NAG 1-160	4140
31	OREGON GRADUATE CTR	Chandra, S.	HQ-EB	Rasmussen, R. A.	NAGW 280	4141
31	OREGON GRADUATE CTR	Watson, R. T.	HQ-EB	Rasmussen, R. A.	NSG 7457	4144
31	OREGON STATE UNIV	Shukla, J.	GSFC	Deardorff, J. W.	NAG 5-51	4147
31	OREGON STATE UNIV	Shukla, J.	GSFC	Gates, W. L.	NAG 5-206	4148
31	OREGON STATE UNIV	Halem, M.	GSFC	Esbensen, S.	NSG 5308	4158
31	OREGON STATE UNIV	Halem, M.	GSFC	Gates, W. L.	NSG 5353	4159
31	PENN STATE U-UNIV PK	Schmidlin, F. J.	GSFC	Olivero, J. J.	NAG 5-606	4237
31	PENN STATE U-UNIV PK	Oseroff, H.	GSFC	Carlson, T. N.	NAS 5-26456	4248
31	PENN STATE U-UNIV PK	Reed, E. I.	GSFC	Nesbit, J. F.	NAS 5-26545	4248
31	PENN STATE U-UNIV PK	Duke, J. R.	GSFC	Olivero, J.	NAS 6-2726	4252
31	PENN STATE U-UNIV PK	Uccellini, L. W.	GSFC	Warner, T.	NSG 5205	4280
31	PENN STATE U-UNIV PK	Kaufman, J. W.	MSFC	Clark, J. H.	NAS 8-33794	4253
31	PENN STATE U-UNIV PK	Fichtl, G. H.	MSFC	Clark, J. H.	NAS 8-33797	4254
31	PENN STATE U-UNIV PK	Brinton, H. C.	HQ-EL	Herman, R. M.	NAGW 127	4241
31	POLY INST OF NY	Spencer, N. W.	GSFC	Gross, S. H.	NSG 5284	3719
31	PRINCETON UNIVERSITY	Carter, C. H.	HQ-LB	Bryan, K.	NGT 31-001-800	3521
31	PURDUE UNIVERSITY	Curran, R. J.	GSFC	Avies, R. D.	NAG 5-101	2583
31	PURDUE UNIVERSITY	Shukla, T.	GSFC	Davies, R.	NAG 5-106	2584
31	PURDUE UNIVERSITY	Fichtl, G. H.	MSFC	Smith, P. J.	NAS 8-34009	2591
31	RENSSELAER POLY-NY	Schaefer, D. A.	MSFC	Wiedemeier, H.	NAS 8-33562	3743
31	RENSSELAER POLY-NY	Gevarter, W. B.	HQ-RT	Yerazunis, S. W.	NASW 3279	3744
31	RICE UNIVERSITY	Spencer, N. W.	GSFC	Reiff, P. H.	NSG 5286	4456
31	RICE UNIVERSITY	Arndt, G. D.	JSC	Gordon, W. E.	NAS 9-16428	4446
31	RICE UNIVERSITY	Quaide, W. L.	HQ-EL	Michel, F. C.	NSG 7032	4458
31	RICE UNIVERSITY	Brinton, H. C.	HQ-EL	Chamberlain, J. W.	NSG 7043	4459
31	RICE UNIVERSITY	Murphy, R. E.	HQ-EL	Stebbins, R. F.	NSG 7386	4461
31	ST LOUIS UNIVERSITY	Hill, K.	MSFC	Fuelburg, H. E.	NAS 8-33370	3385
31	SAN DIEGO STATE UNIV	Brinton, H. C.	HQ-EL	Young, L.	NAGW 184	1342
31	SAN DIEGO STATE UNIV	Brinton, H. C.	HQ-EL	Young, A.	NAGW 250	1344
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NCA 2-675007	1363
31	SAN JOSE STATE UNIV	Toon, O. B.	ARC	Riegel, C. A.	NCC 2-68	1382
31	SAN JOSE STATE UNIV	Danielsen, E. F.	ARC	Riegel, C. A.	NCC 2-73	1384
31	SAN JOSE STATE UNIV	Pollack, J.	ARC	Riegel, C. A.	NCC 2-132	1391
31	SAN JOSE STATE UNIV	Inn, E. C.	ARC	Goodman, T. K.	NCC 2-168	1400
31	SAN JOSE STATE UNIV	Pollack, J. B.	ARC	Riegel, C. A.	NCC 2-183	1401
31	SAN JOSE STATE UNIV	Chan, K. L.	ARC	Riegel, C.	NCC 2-211	1405

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31	SO UNIV & A&M COL-BR	Carter, D. J.	LARC	Scott, R. L.	NAS 1-15335	2781
31	STANFORD UNIVERSITY	Guynes, B. V.	MSFC	Darosa, A. V.	NAS 8-32852	1472
31	STANFORD UNIVERSITY	Decher, R.	MSFC	Everitt, C. W.	NAS 8-33796	1474
31	STANFORD UNIVERSITY	Lynch, J. T.	HQ-EE	Banks, P. M.	NAGW 235	1455
31	STANFORD UNIVERSITY	Brinton, H. C.	HQ-EL	Eshleman, V. R.	NGL 05-020-014	1541
31	STATE UNIV NY-ALBANY	Margozzi, A. P.	ARC	Lazrus, A. L.	NSG 2386	3769
31	STATE UNIV NY-ALBANY	Whitehead, V.	JSC	Duggin, M. J.	NAS 9-16331	3765
31	STATE UNIV NY-ALBANY	Christian, H. J.	MSFC	Orville, R. E.	NAS 8-33380	3763
31	ST U NY COL-PURCHASE	Halem, M.	GSFC	Tenenbaum, J.	NSG 5077	3824
31	STATE U NY-STONY BRK	Chang, S.	ARC	Owens, T.	NCA 2-760101	3802
31	STATE U NY-STONY BRK	Stewart, R. W.	GSFC	Hogan, J. S.	NCC 5-7	3804
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Owen, T.	NCC 5-23	3805
31	STATE U NY-STONY BRK	Hall, J. B., Jr.	LARC	Cess, R. D.	NAS 1-16444	3796
31	STATE U NY-STONY BRK	Chandra, S.	HQ-EB	Soloman, P. M.	NAGW 353	3795
31	STATE U NY-STONY BRK	Brinton, H. C.	HQ-EL	Varanasi, P.	NGR 33-015-139	3807
31	TEXAS A&M UNIVERSITY	Krishen, K.	JSC	Jean, B. R.	NAS 9-16102	4504
31	TEXAS A&M UNIVERSITY	Whitehead, V. S.	JSC	Franceschini, G.	NAS 9-16601	4512
31	TEXAS A&M UNIVERSITY	Hill, C. K.	MSFC	Scoggins, J. R.	NAS 8-31773	4490
31	TEXAS A&M UNIVERSITY	Turner, R. E.	MSFC	Scoggins, J. R.	NAS 8-33776	4493
31	TEXAS A&M UNIVERSITY	Turner, R. E.	MSFC	Scoggins, J. R.	NAS 8-34133	4494
31	TEXAS A&M UNIVERSITY	Turner, R. E.	MSFC	Scoggins, J. R.	NAS 8-34532	4496
31	TEXAS A&M UNIVERSITY	Turner, R. E.	MSFC	Scoggins, J. R.	NAS 8-34735	4498
31	TEXAS A&M UNIVERSITY	Arnold, J. E.	MSFC	Huebner, G. L.	NAS 8-34972	4500
31	TEXAS A&M UNIVERSITY	Arnold, J. E.	MSFC	Huebner, G. L.	NAS 8-34972	4500
31	TEXAS A&M UNIVERSITY	Brinton, H. C.	HQ-EL	Kattawar, G. W.	NGR 44-001-117	4523
31	UNIV ALA-HUNTSVILLE	Hagyard, D. J.	MSFC	Krall, K. R.	NAS 8-33525	1042
31	UNIV ALA-HUNTSVILLE	Tandberghanssen, E.	MSFC	Wu, S. T.	NAS 8-33526	1043
31	UNIV ALA-HUNTSVILLE	Decher, R.	MSFC	Karr, G. R.	NAS 8-33809	1048
31	UNIV ALA-HUNTSVILLE	Owen, R. B.	MSFC	Riley, C.	NAS 8-33812	1051
31	UNIV ALA-HUNTSVILLE	Fishman, G. J.	MSFC	Gregory, J. C.	NAS 8-34137	1057
31	UNIV ALA-HUNTSVILLE	Richards, L. O.	MSFC	Wu, S. T.	NAS 8-34953	1064
31	UNIV ALA-UNIVERSITY	Peters, P. N.	MSFC	Bertsch, W.	NAS 8-33507	1075
31	UNIV ALASKA-FAIRBNKS	Milliner, C. F.	GSFC	Brown, N. B.	NAS 6-3065	1083
31	UNIV OF ARIZONA	Murphy, J. P.	ARC	Hunten, D. M.	NAG 2-119	1129
31	UNIV OF ARIZONA	Wolfe, C. L.	GSFC	Hill, H. A.	NAG 5-143	1137
31	UNIV OF ARIZONA	Fellerman, K.	GSFC	Smith, B. A.	NAS 5-25484	1172
31	UNIV OF ARIZONA	Wolff, C. L.	GSFC	Hill, H. A.	NAS 5-26176	1175
31	UNIV OF ARIZONA	Dietz, W. R.	KSC	Krider, E. P.	NAS10-10082	1189
31	UNIV OF ARIZONA	McCormick, M. P.	LARC	Herman, B. M.	NAS 1-14332	1167
31	UNIV OF ARIZONA	Fowles, W. W.	MSFC	Gall, R. L.	NAS 8-33815	1182
31	UNIV OF ARIZONA	Christian, H. J.	MSFC	Krider, E. P.	NAS 8-34734	1183
31	UNIV OF ARIZONA	Watson, R. T.	HQ-EE	Hunten, D. H.	NSG 7485	1219
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Sil, G. T.	NAGW 67	1149
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Hunten, D. M.	NAGW 149	1154
31	UNIV OF ARIZONA	Brunk, W. E.	HQ-EL	Brown, R. A.	NAGW 262	1161
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Tomasko, M.	NAGW 331	1163
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Lewis, J. S.	NAGW 340	1165
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Hunten, D. M.	NSG 7558	1222
31	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Tomasko, M. G.	NSG 7573	1223
31	UNIV ARKANSAS-FAYETV	Smith, O. E.	MSFC	Tubbs, J. D.	NAS 8-33224	1232
31	UNIV ARKANSAS-FAYETV	Smith, O. E.	MSFC	Tubbs, J. D.	NAS 8-34502	1233
31	UNIV ARKANSAS-LTL RK	Ragent, B.	ARC	Mazumder, M. K.	NAG 2-147	1235
31	UNIV CALIF-BERKELEY	Cassen, P. M.	ARC	Shu, F.	NCA 2-50203	1629
31	UNIV CALIF-BERKELEY	Spencer, N. W.	GSFC	Bowyer, S.	NAG 5-139	1581
31	UNIV CALIF-DAVIS	Fitzgarrald, D. E.	MSFC	Carroll, J. J.	NAS 8-34730	1675
31	UNIV CALIF-IRVINE	Watson, R. T.	HQ-EB	Molina, M. J.	NSG 7208	1698
31	UNIV CALIF-L ANGELES	Fimmel, R. O.	ARC	Russell, C. T.	NAS 2-9491	1726
31	UNIV CALIF-L ANGELES	Ehernberger, L. J.	DFRF	Wurtele, M. G.	NSG 4024	1762
31	UNIV CALIF-L ANGELES	Halem, M.	GSFC	Suarez, J.	NGR 05-007-328	1752
31	UNIV CALIF-L ANGELES	Woods, D. C.	LARC	Friedlander, S. K.	NAS 1-16674	1723
31	UNIV CALIF-L ANGELES	Brinton, H. C.	HQ-EL	Siscoe, G. L.	NAGW 87	1716

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31	UNIV CALIF-L ANGELES	Brinton, H. C.	HQ-EL	Schubert, G.	NSG 7164	1769
31	UNIV CALIF-L ANGELES	Murphy, R. E.	HQ-EL	Allen, L. H.	NSG 7239	1770
31	UNIV CALIF-L ANGELES	Brinton, H. C.	HQ-EL	Coleman, P. J.	NSG 7295	1771
31	UNIV CALIF-SAN DIEGO	Shukla, J.	GSFC	Roads, J. O.	NAG 5-105	1786
31	UNIV CALIF-SAN DIEGO	Baker, W.	GSFC	Somerville, R. C.	NAG 5-236	1790
31	UNIV CALIF-SAN DIEGO	Wende, C.	GSFC	Hudson, H. S.	NSG 5321	1840
31	UNIV CALIF-SAN DIEGO	Wende, C.	GSFC	Hudson, H. S.	NSG 5322	1841
31	UNIV CALIF-SAN DIEGO	Sullivan, E. M.	LARC	Cicerone, R. J.	NAG 1-77	1781
31	UNIV CALIF-SAN DIEGO	Chappell, C. R.	MSFC	Canfield, R. C.	NAS 8-33795	1820
31	UNIV CALIF-SAN DIEGO	Watson, R. T.	HQ-EB	Cicerow, R. J.	NAGW 45	1798
31	UNIV CALIF-SAN DIEGO	Murphy, R. E.	HQ-EL	Whipple, E. C.	NAGW 225	1803
31	UNIV OF CENTRAL FLA	Knott, W. M.	KSC	Hudson, G. M.	NAS10-9897	2263
31	UNIV OF CHICAGO	Kalnay, E.	GSFC	Kuo, H. L.	NAG 5-129	2472
31	UNIV OF CHICAGO	Wales, R. O.	GSFC	Meyer, P.	NAS 5-26680	2482
31	UNIV OF CHICAGO	Adler, R. F.	GSFC	Srivastava, R. C.	NSG 5402	2503
31	UNIV OF CHICAGO	Guynes, B. V.	MSFC	Myers, P.	NAS 8-32828	2483
31	UNIV OF CHICAGO	Fitzgarrald, D. E.	MSFC	Srivastava, R. C.	NAS 8-34770	2484
31	UNIV OF CHICAGO	Dodge, J. C.	HQ-EB	Fujita, T. T.	NGR 14-001-008	2496
31	UNIV OF CHICAGO	Opp, A. G.	HQ-EZ	Muller, D.	NSG 7464	2506
31	UNIV COLORADO-BOLDR	Zwally, H. J.	GSFC	Barry, R. G.	NAG 5-142	2048
31	UNIV COLORADO-BOLDR	Mentall, J. E.	GSFC	Mount, G. H.	NAG 5-212	2052
31	UNIV COLORADO-BOLDR	Bullock, G. D.	GSFC	Stewart, A. I.	NAS 5-11405	2071
31	UNIV COLORADO-BOLDR	Browne, W. H.	GSFC	Mount, G. H.	NAS 5-26170	2075
31	UNIV COLORADO-BOLDR	Browne, W. H.	GSFC	Rottman, G. J.	NAS 5-26172	2076
31	UNIV COLORADO-BOLDR	Reber, C. A.	GSFC	London, J.	NAS 5-26303	2077
31	UNIV COLORADO-BOLDR	Donley, J.	GSFC	London, J.	NAS 5-27263	2081
31	UNIV COLORADO-BOLDR	Frederick, J.	GSFC	London, J.	NSG 5153	2093
31	UNIV COLORADO-BOLDR	Wende, C.	GSFC	Gebbie, K. B.	NSG 5318	2097
31	UNIV COLORADO-BOLDR	Reed, E. I.	GSFC	Rusch, D. W.	NSG 5372	2098
31	UNIV COLORADO-BOLDR	Watson, R. T.	HQ-EB	Barth, C. A.	NSG 7559	2106
31	UNIV COLORADO-BOLDR	Chandra, S.	HQ-EE	Rusch, D. W.	NAGW 292	2066
31	UNIV COLORADO-BOLDR	Watson, R. T.	HQ-EE	Thomas, R. J.	NSG 7231	2100
31	UNIV COLORADO-BOLDR	Brinton, H. C.	HQ-EL	Hord, C. W.	NAGW 197	2064
31	UNIV COLORADO-BOLDR	Brinton, H. C.	HQ-EL	Timothy, J. G.	NAGW 343	2067
31	UNIV COLORADO-BOLDR	Brinton, H. C.	HQ-EL	Barth, C.	NAGW 358	2068
31	UNIV COLORADO-BOLDR	Brinton, H. C.	HQ-EL	Barth, C. A.	NGL 06-003-052	2087
31	UNIV COLORADO-BOLDR	Brinton, H. C.	HQ-EL	Barth, C. A.	NGR 06-003-127	2090
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Bock, P.	NSG 5075	2135
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Lin, J. D.	NSG 5346	2136
31	UNIV OF DAYTON	Schmidlin, F. J.	GSFC	Luers, J. K.	NAS 6-3086	4084
31	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-33369	4085
31	UNIV OF DAYTON	Camp, D. W.	MSFC	Luers, J. K.	NAS 8-34687	4088
31	UNIV OF DELAWARE	Shukla, J.	GSFC	Willmott, C. J.	NAG 5-107	2156
31	UNIV OF DENVER	Munoz, R. M.	ARC	Murcray, D. G.	NAS 2-10158	2116
31	UNIV OF DENVER	Margozzi, A.	ARC	Murcray, D. G.	NAS 2-11186	2117
31	UNIV OF DENVER	Goad, J. H.	LARC	Goldman, A.	NAG 1-56	2111
31	UNIV OF DENVER	Goad, J. H.	LARC	Murcray, D. G.	NAG 1-57	2112
31	UNIV OF DENVER	McMaster, L. R.	LARC	Murcray, D. G.	NAS 1-14929	2114
31	UNIV OF DENVER	McMaster, L. R.	LARC	Murcray, D. G.	NAS 1-16306	2115
31	UNIV OF DENVER	Seals, R. K., Jr.	LARC	Goldman, A.	NCC 1-48	2123
31	UNIV DIST COLUMBIA	Curran, R. J.	GSFC	Dhuria, H.	NAG 5-75	2233
31	UNIV OF FLORIDA	Wilhelmi, A. J.	ARC	Lanzerotti, L. J.	NAS 2-9976	2278
31	UNIV OF FLORIDA	Oseroff, H.	GSFC	Allen, L. H.	NAS 5-26453	2282
31	UNIV OF FLORIDA	Horn, F. W.	KSC	Martsof, J. D.	NAS10-9876	2285
31	UNIV OF FLORIDA	Withrow, R.	KSC	Martsof, J. D.	NAS10-9892	2286
31	UNIV OF FLORIDA	Dietz, W. R.	KSC	Uman, M. A.	NGR 10-005-169	2293
31	UNIV OF FLORIDA	Brinton, H. C.	HQ-EL	Weinberg, J. L.	NAGW 126	2274
31	UNIV OF FLORIDA	Brunk, W. E.	HQ-EL	Carr, T. D.	NAGW 320	2276
31	UNIV OF FLORIDA	Brinton, H. C.	HQ-EL	Green, A. S.	NGL 10-005-008	2292
31	UNIV OF HAWAII-MANOA	Greaves, J. R.	GSFC	Sadler, J. C.	NAS 5-25376	2414

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31	UNIV OF HAWAII-MANOA	Wende, C.	GSFC	Jefferies, J. T.	NSG 5317	2423
31	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	McCord, T. B.	NSG 7590	2430
31	UNIV HOUSTON-HOUSTON	Boyce, J. M.	HQ-EL	Smith, R. S.	NAGW 39	4541
31	UNIV ILLINOIS-URBANA	Rodgers, E. B.	GSFC	Kidder, S. Q.	NAG 5-132	2524
31	UNIV ILLINOIS-URBANA	Wende, C.	GSFC	Mouschovias, T. C.	NSG 5319	2544
31	UNIV ILLINOIS-URBANA	Fichil, G. A.	MSFC	Achtemeier, G. L.	NAS 8-34902	2533
31	UNIV ILLINOIS-URBANA	Chandra, S.	HQ-EE	Bowhill, S. A.	NSG 7506	2546
31	UNIV OF IOWA	Wende, C. D.	GSFC	Calvert, W.	NAG 5-153	2651
31	UNIV OF IOWA	Wales, R. O.	GSFC	Frank, L. A.	NAS 5-26257	2669
31	UNIV OF IOWA	Guynes, B. V.	MSFC	Shawhan, S. D.	NAS 8-32807	2675
31	UNIV OF KANSAS	Schmugge, T.	GSFC	Ulaby, F. T.	NAS 5-25807	2713
31	UNIV OF KANSAS	Paris, J. F.	JSC	Ulaby, F. T.	NAS 9-15421	2715
31	UNIV OF KENTUCKY	Reichle, H. G., Jr.	LARC	Peters, L. K.	NSG 1424	2757
31	UNIV MARYLAND-COL PK	Margozzi, A. P.	ARC	Zoller, W. H.	NAG 2-28	2841
31	UNIV MARYLAND-COL PK	Halem, M.	GSFC	Baer, F.	NAG 5-26	2844
31	UNIV MARYLAND-COL PK	Wende, C.	GSFC	Schmadi, E. J.	NAG 5-29	2845
31	UNIV MARYLAND-COL PK	Friskey, J. L.	GSFC	Currie, D. G.	NAG 5-90	2847
31	UNIV MARYLAND-COL PK	Ramapriyan, H. K.	GSFC	Kanal, L. N.	NAG 5-154	2851
31	UNIV MARYLAND-COL PK	Fraser, R. S.	GSFC	Baer, F.	NAG 5-203	2853
31	UNIV MARYLAND-COL PK	Halem, M.	GSFC	Rodenhuis, D. R.	NAG 5-215	2854
31	UNIV MARYLAND-COL PK	Fellerman, K.	GSFC	Currie, D. G.	NAS 5-25486	2881
31	UNIV MARYLAND-COL PK	Neil, E. A.	GSFC	Gal-chen, T.	NAS 5-26463	2886
31	UNIV MARYLAND-COL PK	Neil, E. A.	GSFC	Baer, F.	NAS 5-26883	2897
31	UNIV MARYLAND-COL PK	Donn, B.	GSFC	Trasco, J. D.	NGL 21-002-033	2911
31	UNIV MARYLAND-COL PK	Hartie, R. E.	GSFC	Matthews, D. L.	NGR 21-002-096	2914
31	UNIV MARYLAND-COL PK	Neil, E. A.	GSFC	Thompson, O. E.	NSG 5209	2943
31	UNIV MARYLAND-COL PK	Bullock, G.	GSFC	Kundu, M. R.	NSG 5320	2946
31	UNIV MARYLAND-COL PK	Donley, J. L.	GSFC	Tidman, D. A.	NSG 5323	2947
31	UNIV MARYLAND-COL PK	Spencer, N. W.	GSFC	Lin, C. S.	NSG 5404	2948
31	UNIV MARYLAND-COL PK	Browell, E. V.	LARC	Wilkerson, T. D.	NCC 1-25	2906
31	UNIV MARYLAND-COL PK	Decher, R.	MSFC	Alley, C. O.	NAS 8-33798	2899
31	UNIV MARYLAND-COL PK	Urban, E. W.	MSFC	Paik, H. J.	NAS 8-33822	2900
31	UNIV MD-EASTRN SHORE	Trafford, G. H.	GSFC	Chapin, E. W.	NAG 6-6	2959
31	UNIV MD-EASTRN SHORE	Torres, A. L.	GSFC	Hung, Y. W.	NAG 6-16	2960
31	UNIV OF MIAMI	Alpert, J. C.	GSFC	Gidel, L. T.	NAG 5-166	2304
31	UNIV OF MIAMI	Oakes, A. G.	GSFC	Gordon, H. R.	NAS 5-22963	2308
31	UNIV OF MIAMI	Fraser, R. S.	GSFC	Prospero, J. M.	NAS 5-26241	2310
31	UNIV OF MIAMI	Halem, M.	GSFC	Estoque, M. A.	NSG 5342	2320
31	UNIV OF MIAMI	Fishman, J.	LARC	Gidel, L. T.	NAG 1-207	2302
31	UNIV OF MIAMI	Fowlis, W. W.	MSFC	Silcher, E. J.	NAS 8-33523	2312
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Sharp, W. E.	NAG 5-140	3253
31	UNIV MICH-ANN ARBOR	Reed, E. I.	GSFC	Horvath, J. J.	NAG 5-230	3255
31	UNIV MICH-ANN ARBOR	Hedin, A. E.	GSFC	Carignan, G. R.	NAS 5-11376	3276
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-11380	3277
31	UNIV MICH-ANN ARBOR	Bullock, G. D.	GSFC	Hays, P. B.	NAS 5-23006	3278
31	UNIV MICH-ANN ARBOR	Bullock, G. D.	GSFC	Walker, J. C.	NAS 5-24331	3280
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25002	3281
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-25031	3282
31	UNIV MICH-ANN ARBOR	Nieman, H.	GSFC	Carignan, G.	NAS 5-25145	3284
31	UNIV MICH-ANN ARBOR	Niemann, H.	GSFC	Carignan, G.	NAS 5-25153	3285
31	UNIV MICH-ANN ARBOR	Browne, W. H.	GSFC	Hays, P. B.	NAS 5-26169	3291
31	UNIV MICH-ANN ARBOR	Browne, W. H.	GSFC	Hays, P. B.	NAS 5-26189	3292
31	UNIV MICH-ANN ARBOR	Brace, L. H.	GSFC	Nagy, A. F.	NAS 5-26678	3293
31	UNIV MICH-ANN ARBOR	Frostrom, R. J., Jr.	GSFC	Horvath, J. J.	NAS 6-2794	3296
31	UNIV MICH-ANN ARBOR	Reed, E. I.	GSFC	Stedman, D. H.	NSG 5189	3317
31	UNIV MICH-ANN ARBOR	Sullivan, E. M.	LARC	Drayson, S. R.	NAG 1-93	3244
31	UNIV MICH-ANN ARBOR	Sullivan, E. M.	LARC	Drayson, S. R.	NAS 1-14394	3268
31	UNIV MICH-ANN ARBOR	Toth, R. A.	HQ-EB	Meriwether, J. W.	NAGW 32	3263
31	UNIV MICH-ANN ARBOR	Watson, R. T.	HQ-EB	Cochran, J. L.	NSG 7209	3318
31	UNIV MICH-ANN ARBOR	Devincenzi, D. L.	HQ-EB	Kuhn, W. R.	NSG 7308	3319

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31	UNIV MICH-ANN ARBOR	Brinton, H. C.	HQ-EL	Cravens, T. E.	NAGW 15	3261
31	UNIV MICH-ANN ARBOR	Brinton, H. C.	HQ-EL	Cravens, T. E.	NAGW 312	3267
31	UNIV MICH-ANN ARBOR	Brinton, H. C.	HQ-EL	Atreya, S. K.	NSG 7404	3320
31	U MINN-MNPLS-ST PAUL	Margozzi, A. P.	ARC	Liu, B. Y.	NAG 2-31	3334
31	U MINN-MNPLS-ST PAUL	Bullock, G.	GSFC	Nier, A. O.	NAS 5-11438	3342
31	U MINN-MNPLS-ST PAUL	Beswick, A. G.	LARC	Mauersberger, K.	NSG 1431	3352
31	U MINN-MNPLS-ST PAUL	Britton, H. C.	HQ-EL	Nier, A. O.	NGL 24-005-009	3348
31	UNIV MO-COLUMBIA	Smith, R. E.	MSFC	Tung, C.	NAS 8-31150	3390
31	UNIV MO-COLUMBIA	Smith, R. C.	MSFC	Kassner, J. L., Jr.	NAS 8-31849	3391
31	UNIV MO-ROLLA	Smith, R. E.	MSFC	Hagen, D. E.	NAS 8-32976	3401
31	UNIV NEBRASKA-LINCLN	Brinton, H. C.	HQ-EL	Samson, J. A.	NGR 28-004-021	3445
31	UNIV NEVADA-DRI	Margozzi, A. P.	ARC	Rogers, C. F.	NAG 2-114	3449
31	UNIV NEVADA-DRI	Smith, R. E.	MSFC	Kocmond, W. C.	NAS 8-32975	3450
31	UNIV NEVADA-DRI	Smith, R. E.	MSFC	Hallot, J.	NAS 8-32977	3451
31	UNIV NEVADA-DRI	Fallon, R. A.	MSFC	Kocmond, W. C.	NAS 8-33273	3452
31	UNIV NEVADA-DRI	Smith, R. E.	MSFC	Kocmond, W. C.	NAS 8-33820	3453
31	UNIV NEVADA-DRI	Bilbro, J. W.	MSFC	Telford, J. W.	NAS 8-34685	3454
31	UNIV NEVADA-DRI	Fitzjarrald, D. E.	MSFC	Telford, J. W.	NAS 8-34731	3455
31	UNIV OF NEVADA-RENO	Fogle, V.	MSFC	Hallett, T.	NAS 8-34605	3458
31	UNIV NEW HAMP-DURHAM	Underwood, C.	GSFC	Chupp, E. L.	NAS 5-23761	3474
31	UNIV NEW HAMP-DURHAM	Wende, C.	GSFC	Fisk, L. A.	NSG 5316	3483
31	UNIV OF NEW MEXICO	Quaide, W. L.	HQ-EL	Keil, K.	NSG 7579	3574
31	UNIV OKLAHOMA-NORMAN	Fitzjarrald, D. E.	MSFC	Doviak, R. J.	NAS 8-34749	4136
31	UNIV OREGON-EUGENE	Chandra, S.	HQ-EE	Nolt, I. G.	NAGW 222	4163
31	UNIV OF PITTSBURGH	Brinton, H. C.	HQ-EL	Fite, W. L.	NGL 39-011-013	4305
31	UNIV OF PITTSBURGH	Brinton, H. C.	HQ-EL	Zipf, E. C.	NGL 39-011-030	4308
31	UNIV OF PITTSBURGH	Brinton, H. C.	HQ-EL	Biondi, M. A.	NGR 39-011-137	4307
31	UNIV OF SO FLORIDA	Hoell, J.	LARC	Braman, R. S.	NAS 1-16844	2323
31	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Kumar, S.	NAGW 57	1979
31	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Maxworthy, T.	NAGW 146	1982
31	UNIV OF SOUTHERN CAL	Murphy, R. E.	HQ-EL	Maxworthy, T.	NGR 05-018-178	1995
31	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Judge, D. L.	NGR 05-018-180	1996
31	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Shemansky, D. E.	NSG 7595	2004
31	UNIV OF SOUTHERN CAL	Brinton, H. C.	HQ-EL	Broadfoot, A. L.	NSG 7644	2005
31	UNIV TENNESSEE-KNOXV	Vaughan, O. H.	MSFC	Connett, J. R.	NAS 8-32031	4373
31	UNIV TENNESSEE-KNOXV	Camp, D. W.	MSFC	Frost, W.	NAS 8-32692	4374
31	UNIV TENNESSEE-KNOXV	Fowles, W. W.	MSFC	Antar, B. N.	NAS 8-33386	4375
31	UNIV TENNESSEE-KNOXV	Schafer, C. F.	MSFC	Antar, B. N.	NAS 8-34268	4376
31	UNIV TENNESSEE-KNOXV	Turner, R. E.	MSFC	Frost, W.	NAS 8-34627	4379
31	UNIV TENNESSEE-KNOXV	Carter, C. H.	HQ-LB	Antar, B.	NGT 43-001-804	4387
31	UNIV TEXAS-AUSTIN	Seyl, J. W.	JSC	Clynch, J.	NAS 9-16086	4597
31	UNIV TEXAS-DALLAS	Spencer, N. W.	GSFC	Heikkila, W. J.	NAG 5-138	4632
31	UNIV TEXAS-DALLAS	Bullock, E. D.	GSFC	Hoffman, J. H.	NAS 5-11406	4636
31	UNIV TEXAS-DALLAS	Bullock, G. D.	GSFC	Hanson, W. B.	NAS 5-11407	4637
31	UNIV TEXAS-DALLAS	Piterski, N.	GSFC	Heelis, R. A.	NAS 5-26174	4645
31	UNIV TEXAS-DALLAS	Brace, L. H.	GSFC	Heikkila, W. J.	NSG 5085	4655
31	UNIV TEXAS-DALLAS	Brace, L. H.	GSFC	Hoffman, J. H.	NSG 5087	4656
31	UNIV TEXAS-DALLAS	Spencer, N. W.	GSFC	Klumpar, D. M.	NSG 5280	4657
31	UNIV TEXAS-DALLAS	Jones, C. T.	MSFC	Tinsley, B. A.	NAS 8-33827	4649
31	UNIV TEXAS-DALLAS	Murphy, R. E.	HQ-EL	Hoffman, J. H.	NAGW 64	4635
31	UNIV TEXAS-DALLAS	Brinton, H. C.	HQ-EL	Hanson, W. B.	NGL 44-004-026	4652
31	UNIV TEXAS-DALLAS	Quaide, W. L.	HQ-EL	Hodges, R. R., Jr.	NSG 7034	4658
31	UNIV TEXAS-DALLAS	Mayr, H. G.	HQ-EZ	Hanson, W. B.	NGR 44-004-120	4654
31	UNIV OF UTAH	Pollack, J. B.	ARC	Liou, K.	NCA 2-821001	4696
31	UNIV OF UTAH	Kalnay, E.	GSFC	Paegle, J.	NAG 5-127	4688
31	UNIV OF UTAH	Greaves, J. R.	GSFC	Kao, S. K.	NAS 5-25373	4695
31	UNIV OF UTAH	Murphy, R. E.	HQ-EL	Sassen, K.	NAGW 82	4692
31	UNIV OF VIRGINIA	Rodgers, E. B.	GSFC	Frank, W. M.	NAG 5-102	4853
31	UNIV OF VIRGINIA	Jones, J. L.	LARC	Singer, S. F.	NAS 1-16550	4861
31	UNIV OF WASHINGTON	Summers, A. L.	ARC	Holton, J. R.	NAG 2-66	4986

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31	UNIV OF WASHINGTON	Snetsinger, K. G.	ARC	Charlson, R. J.	NSG 2362	5034
31	UNIV OF WASHINGTON	Kalnay, E.	GSFC	Holton, J. R.	NAG 5-233	4997
31	UNIV OF WASHINGTON	Nelson, D.	GSFC	Katsares, K. B.	NAS 5-26262	5020
31	UNIV OF WASHINGTON	Donley, J.	GSFC	Holton, J. R.	NAS 5-26301	5021
31	UNIV OF WASHINGTON	Dietrich, J. W.	JSC	Brownlee, D. E.	NSG 9052	5045
31	UNIV OF WASHINGTON	Hinton, D. E.	LARC	Leovy, C. B.	NAS 1-14341	5016
31	UNIV OF WASHINGTON	Hall, J. B.	LARC	Hartman, D. L.	NAS 1-16462	5017
31	UNIV OF WASHINGTON	Smith, R. E.	MSFC	Hobbs, P. V.	NAS 8-33148	5022
31	UNIV OF WASHINGTON	Smith, R. E.	MSFC	Ely, J. T.	NAS 8-33884	5025
31	UNIV OF WASHINGTON	Brinton, H. C.	HQ-EL	Tillman, J. E.	NAGW 36	5008
31	UNIV OF WASHINGTON	Murphy, R. E.	HQ-EL	Leovy, C. B.	NAGW 228	5011
31	UNIV OF WASHINGTON	Brinton, H. C.	HQ-EL	Leovy, C. B.	NSG 7085	5040
31	UNIV OF WASHINGTON	Brinton, H. C.	HQ-EL	Leovy, C.	NSG 7611	5043
31	UNIV WISC-MADISON	Adler, R. F.	GSFC	Schlesinger, R. E.	NAG 5-23	5074
31	UNIV WISC-MADISON	Atlas, R. M.	GSFC	Johnson, D. R.	NAG 5-81	5075
31	UNIV WISC-MADISON	Kalnay, E.	GSFC	Wahba, G.	NAG 5-128	5076
31	UNIV WISC-MADISON	Susskind, J.	GSFC	Suomi, V. E.	NAG 5-274	5078
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. E.	NAS 5-21965	5091
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. E.	NAS 5-23462	5092
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. E.	NAS 5-25148	5095
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. E.	NAS 5-25377	5096
31	UNIV WISC-MADISON	Hurley, E. J.	GSFC	Smith, W. L.	NAS 5-26142	5102
31	UNIV WISC-MADISON	Greaves, J. R.	GSFC	Suomi, V. E.	NAS 5-26540	5106
31	UNIV WISC-MADISON	Brakke, T.	GSFC	Eloranta, E. W.	NAS 5-27320	5108
31	UNIV WISC-MADISON	Halem, M.	GSFC	Kutzbach, J. E.	NSG 5152	5124
31	UNIV WISC-MADISON	Halem, M.	GSFC	Herman, G. F.	NSG 5223	5125
31	UNIV WISC-MADISON	Halem, M.	GSFC	Horn, L. H.	NSG 5252	5126
31	UNIV WISC-MADISON	Browell, E. V.	LARC	Eloranta, E. W.	NAG 1-212	5067
31	UNIV WISC-MADISON	Browell, E. V.	LARC	Eloranta, E.	NAS 1-14136	5088
31	UNIV WISC-MADISON	Hall, J. B., Jr.	LARC	Smith, W. L.	NAS 1-16507	5089
31	UNIV WISC-MADISON	Shook, D. F.	LERC	Scarpace, F. L.	NAG 3-174	5072
31	UNIV WISC-MADISON	Turner, R. E.	MSFC	Johnson, D. R.	NAS 8-33222	5109
31	UNIV WISC-MADISON	Wilson, G. S.	MSFC	Suchman, D.	NAS 8-33799	5110
31	UNIV WISC-MADISON	Turner, R. E.	MSFC	Fox, R.	NAS 8-34557	5111
31	UNIV WISC-MADISON	Wilson, G. S.	MSFC	Suomi, V. E.	NAS 8-34732	5112
31	UNIV WISC-MADISON	Dodge, J. C.	HQ-EB	Suomi, V. E.	NASW 3476	5114
31	UNIV WISC-MADISON	Brinton, H.	HQ-EL	Suomi, V. E.	NAGW 47	5084
31	UNIV WISC-MADISON	Brinton, H. C.	HQ-EL	Suomi, V. E.	NAGW 314	5087
31	UNIV WISC-MADISON	Brinton, H. C.	HQ-EL	Suomi, V. E.	NGR 50-002-189	5121
31	UNIV OF WYOMING	Toon, O. B.	ARC	Rosen, J. M.	NAG 2-65	5133
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NAS 1-14931	5136
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Hofmann, D. J.	NAS 1-15377	5137
31	UNIV OF WYOMING	McMaster, L. R.	LARC	Pepin, T. J.	NAS 1-16305	5138
31	UNIV OF WYOMING	Smith, R. E.	MSFC	Vali, G.	NAS 8-33150	5140
31	UTAH STATE UNIV	Browne, W. H., Jr.	GSFC	Torr, D. G.	NAS 5-26171	4712
31	UTAH STATE UNIV	Chappell, C. R.	MSFC	Raitt, W. J.	NAS 8-32636	4714
31	UTAH STATE UNIV	Jones, C. T.	MSFC	Torr, M. R.	NAS 8-33992	4715
31	UTAH STATE UNIV	Esenwein, G. F.	HQ-EE	Torr, D. G.	NAGW 345	4709
31	UTAH STATE UNIV	Watson, R. T.	HQ-EE	Torr, M. R.	NAGW 354	4710
31	UTAH STATE UNIV	Mayr, H. G.	HQ-EZ	Banks, P. M.	NSG 7289	4723
31	VIRGINIA POLY INST	Hinton, D. E.	LARC	Mahan, J. R.	NAS 1-16508	4942
31	WASHINGTON ST UNIV	Starr, W. L.	ARC	Campbell, W. J.	NAG 2-97	5047
31	WASHINGTON ST UNIV	Chandra, S.	HQ-EE	Cronn, D.	NSG 7214	5057
31	WASHINGTON UNIVERSTY	Cuzzi, J. N.	ARC	Smith, W. H.	NCA 2-841001	3424
31	WASHINGTON UNIVERSTY	Dietrich, J.	JSC	Hohenberg, C. M.	NAG 9-7	3414
31	WASHINGTON UNIVERSTY	Boughner, R. E.	LARC	Smith, W. H.	NAG 1-38	3411
31	WAYNE STATE UNIV	Margozzi, A. P.	ARC	Wang, C. C.	NAG 2-39	3324
31	WEBER STATE COL	Deloach, A. C.	MSFC	Tripp, D. A.	NAS 8-33113	4726
31	WESTRN KENTUCKY UNIV	Green, J. L.	MSFC	Six, N. F.	NAS 8-34424	2764
31	YALE UNIVERSITY	Toon, O. B.	ARC	Wegener, P. P.	NAG 2-15	2140

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31	YALE UNIVERSITY	Fichel, B. G.	MSFC	Saltzman, B.	NAS 8-34903	2147
32	ALASKA PACIFIC UNIV	Demel, K. J.	JSC	Ingram, J.	NAS 9-16719	1079
32	ARIZONA STATE UNIV	Pollack, J. B.	ARC	Unavailable	NAG 2-174	1093
32	ARIZONA STATE UNIV	Pollack, J. B.	ARC	Krinsley, D.	NCA 2-35001	1113
32	ARIZONA STATE UNIV	Dietrich, J. W.	JSC	Buseck, P. R.	NAG 9-4	1100
32	ARIZONA STATE UNIV	Devincenzi, D. L.	HQ-EB	Cronin, J. R.	NSG 7255	1120
32	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Malin, M. C.	NAGW 1	1101
32	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Krinsley, D.	NAGW 24	1102
32	ARIZONA STATE UNIV	Quaide, W. L.	HQ-EL	Greeley, R.	NAGW 56	1103
32	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Greeley, R.	NAGW 132	1104
32	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Malin, M.	NAGW 139	1105
32	ARIZONA STATE UNIV	Taylor, L. A.	HQ-EL	Buseck, P. R.	NAGW 143	1106
32	ARIZONA STATE UNIV	Quaide, W. L.	HQ-EL	Holloway, J. R.	NAGW 182	1107
32	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Sheridan, M. F.	NAGW 245	1108
32	ARIZONA STATE UNIV	Quaide, W. L.	HQ-EL	Greeley, R.	NAGW 263	1109
32	ARIZONA STATE UNIV	Taylor, L. A.	HQ-EL	Moore, C. B.	NGL 03-001-001	1114
32	ARIZONA STATE UNIV	Taylor, L. A.	HQ-EL	Larimer, J. W.	NSG 7040	1119
32	ARIZONA STATE UNIV	Boyce, J. M.	HQ-EL	Greeley, R.	NSG 7415	1121
32	ARIZONA STATE UNIV	Dwornik, S. E.	HQ-EL	Sheridan, M.	NSG 7642	1123
32	AUBURN UNIV-AUBURN	Slaby, J. A.	MSFC	Moore, R. K.	NAS 8-34130	1014
32	BOSTON UNIVERSITY	Devincenzi, D. L.	HQ-EB	Margulis, L.	NGR 22-004-025	2979
32	BROWN UNIVERSITY	Broderick, J. C.	GSFC	Head, J. W.	NAS 5-26729	4321
32	BROWN UNIVERSITY	Quaide, W. L.	HQ-EL	Pieters, C. M.	NAGW 28	4318
32	BROWN UNIVERSITY	Boyce, J. M.	HQ-EL	Head, J. W.	NASW 3508	4322
32	BROWN UNIVERSITY	Boyce, J. M.	HQ-EL	Head, J. W.	NGR 40-002-088	4323
32	BROWN UNIVERSITY	Boyce, J. M.	HQ-EL	Head, J. W.	NGR 40-002-116	4324
32	BROWN UNIVERSITY	Boyce, J. M.	HQ-EL	Head, J. W.	NSG 7569	4327
32	BROWN UNIVERSITY	Boyce, J. M.	HQ-EL	Head, J. W.	NSG 7570	4328
32	BROWN UNIVERSITY	Quaide, W. L.	HQ-EL	Rutherford, M. J.	NSG 7589	4329
32	BROWN UNIVERSITY	Quaide, W. L.	HQ-EL	Parmentier, E. M.	NSG 7605	4330
32	CALIF INST OF TECH	Mead, G. D.	GSFC	Hager, B. H.	NAS 5-27226	1273
32	CALIF INST OF TECH	Boyce, J. M.	HQ-EL	Shoemaker, E. M.	NAGW 138	1255
32	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Tombrello, T. A.	NAGW 148	1256
32	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Stevenson, D. J.	NAGW 185	1258
32	CALIF INST OF TECH	Quaide, W. E.	HQ-EL	Stone, E. C.	NAGW 200	1259
32	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Haff, P. K.	NAGW 202	1260
32	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Ahrens, T. J.	NAGW 205	1261
32	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Stolper, E.	NAGW 257	1265
32	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Mazur, V.	NGL 05-002-105	1282
32	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Ahrens, T. J.	NSG 7129	1301
32	CALIF INST OF TECH	Quaide, W. L.	HQ-EL	Burnett, D. S.	NSG 7202	1302
32	CALIF INST OF TECH	Vitale, J. A.	HQ-ET	Anderson, D. L.	NSG 7610	1305
32	CAL STATE U-FULLERTN	Taylor, L. A.	HQ-EL	Woolum, D. S.	NSG 7314	1321
32	CARNEGIE-MELLON UNIV	Hartung, J.	HQ-EL	Kohman, T. P.	NSG 7585	4180
32	CITY COLLEGE OF N Y	Boyce, J. M.	HQ-EL	Weiss, D.	NAGW 22	3583
32	COLUMBIA UNIVERSITY	Holweck, E. C.	GSFC	Haxby, W. F.	NAG 5-33	3604
32	COLUMBIA UNIVERSITY	Welker, J.	GSFC	Watts, T. S.	NAG 5-98	3605
32	COLUMBIA UNIVERSITY	Mead, G. D.	GSFC	Johnson, T. L.	NAS 5-27237	3615
32	COLUMBIA UNIVERSITY	Mead, G. D.	GSFC	Scholz, C. H.	NAS 5-27239	3616
32	COLUMBIA UNIVERSITY	Ungar, S. G.	GSFC	Lewis, R. A.	NCC 5-20	3625
32	CORNELL UNIVERSITY	Welker, J.	GSFC	Turcotte, D. L.	NAG 5-39	3642
32	CORNELL UNIVERSITY	Harper, E. L.	GSFC	Oliver, J.	NAG 5-40	3643
32	CORNELL UNIVERSITY	Mead, G. D.	GSFC	Oliver, J.	NAS 5-27232	3654
32	CORNELL UNIVERSITY	Mead, G.	GSFC	Turcotte, D. L.	NAS 5-27340	3655
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-EL	Thomas, P.	NAGW 111	3647
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Veverka, J.	NAGW 193	3649
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Burns, J. A.	NAGW 310	3650
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-EL	Veverka, J.	NASW 3342	3656
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Turcotte, D. L.	NGR 33-010-108	3665
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-EL	Sagan, C. E.	NGR 33-010-220	3668

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32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-EL	Veverka, J.	NSG 7156	3677
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-EL	Veverka, J.	NSG 7546	3682
32	CORNELL UNIVERSITY	Boyce, J. M.	HQ-EL	Veverka, J.	NSG 7547	3683
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Burns, J. A.	NSG 7593	3684
32	CORNELL UNIVERSITY	Quaide, W. L.	HQ-EL	Veverka, J.	NSG 7606	3685
32	DARTMOUTH COLLEGE	Kouns, C. W.	GSFC	Birnie, R. W.	NAG 5-159	3462
32	DARTMOUTH COLLEGE	Ungar, S. G.	GSFC	Birnie, R. W.	NCC 5-22	3464
32	DARTMOUTH COLLEGE	Wales, R.	GSFC	Sonnerup, B. U.	NSG 5348	3467
32	HARVARD UNIVERSITY	Mead, G. D.	GSFC	O'connell, R. J.	NAS 5-27229	3008
32	HARVARD UNIVERSITY	Devincenzi, D. L.	HQ-EB	Barghoorn, E. S.	NGL 22-007-069	3018
32	HARVARD UNIVERSITY	Quaide, W. L.	HQ-EL	Cameron, A. G.	NGR 22-007-269	3021
32	HUNTER COLLEGE	Peterson, D. L.	ARC	Strahler, A.	NCA 2-305201	3690
32	HUNTER COLLEGE	Ungar, S. G.	GSFC	Robinson, V. B.	NSG 5325	3691
32	INDIANA U-BLOOMINGTN	McKay, D. S.	JSC	Basu, A.	NSG 9072	2563
32	INDIANA U-BLOOMINGTN	Dietrich, J. N.	JSC	Basu, A.	NSG 9077	2564
32	JACKSON STATE UNIV	Atwell, B. H.	NSTL	Lang, M.	NSG 736	3361
32	JOHNS HOPKINS UNIV	Welker, J.	GSFC	Marsh, B. D.	NAG 5-32	2804
32	JOHNS HOPKINS UNIV	Kouns, C. W.	GSFC	Marsh, B. D.	NAG 5-35	2805
32	KANSAS STATE UNIV	Quaide, W. L.	HQ-EL	Underwood, J. R.	NSG 7580	2684
32	KANSAS STATE UNIV	Boyce, J. M.	HQ-EL	Underwood, J. R.	NSG 7613	2685
32	KENT STATE UNIV-KENT	Labovitz, M. L.	GSFC	Craig, R.	NAG 5-165	3984
32	KENT STATE UNIV-KENT	Toll, D. L.	GSFC	Craig, R.	NAS 5-26111	3985
32	LEHIGH UNIVERSITY	Taylor, L. A.	HQ-EL	Goldstein, J. I.	NGR 39-007-043	4213
32	LA ST U&A&M COL-BRGE	Brannon, D. P.	NSTL	Whitehurst, C. A.	NAS13-148	2772
32	LA STATE U-SHREVEPT	Boyce, J. M.	HQ-EL	Nummedal, D.	NSG 7542	2776
32	MASS INST OF TECH	Chang, A. T.	GSFC	Kong, J. A.	NAG 5-16	3073
32	MASS INST OF TECH	Kouns, C. W.	GSFC	Molnar, P.	NAG 5-19	3074
32	MASS INST OF TECH	Kouns, C. W.	GSFC	Toksoz, M. N.	NAG 5-41	3075
32	MASS INST OF TECH	Welker, J.	GSFC	Solomon, S. C.	NAG 5-44	3077
32	MASS INST OF TECH	Halem, M.	GSFC	Eagleson, P. S.	NAG 5-89	3078
32	MASS INST OF TECH	Kouns, C. W.	GSFC	Spear, F. S.	NAG 5-147	3082
32	MASS INST OF TECH	Shiue, J. C.	GSFC	Kong, J. A.	NAS 5-26861	3112
32	MASS INST OF TECH	Mead, G. D.	GSFC	Shapiro, I. I.	NAS 5-27230	3113
32	MASS INST OF TECH	Mead, G. D.	GSFC	Solomon, S. C.	NAS 5-27339	3115
32	MASS INST OF TECH	Clark, T. A.	GSFC	Shapiro, I. I.	NGR 22-009-839	3148
32	MASS INST OF TECH	Quaide, W. L.	HQ-EL	Solomon, S.	NAGW 191	3095
32	MASS INST OF TECH	Quaide, W. L.	HQ-EL	Shapiro, I. I.	NAGW 215	3097
32	MASS INST OF TECH	Quaide, W. L.	HQ-EL	Reasenber, R. D.	NAGW 332	3099
32	MASS INST OF TECH	Quaide, W. L.	HQ-EL	Toksoz, M. N.	NSG 7081	3173
32	MASS INST OF TECH	Boyce, J. M.	HQ-EL	Solomon, S. C.	NSG 7297	3175
32	MASS INST OF TECH	Quaide, W. L.	HQ-EL	Burns, R. G.	NSG 7604	3180
32	MIDDLE TENN ST UNIV	Conner, P. K.	NSTL	Fullerton, R. O.	NAS13-171	4358
32	MISSISSIPPI STATE U	Atwell, B. H.	NSTL	Miller, W. F.	NAS13-158	3373
32	MURRAY STATE U-KY	Patterson, F. A.	NSTL	Weber, N. N.	NAS13-177	2749
32	MURRAY STATE U-KY	Severs, T. L.	NSTL	Weber, N. V.	NAS13-200	2750
32	NO CAROLINA STATE U	Oseroff, H.	GSFC	Won, I. J.	NAS 5-26157	3866
32	NE LOUISIANA UNIV	Boyce, J. M.	HQ-EL	Dehon, R.	NSG 7534	2778
32	NE LOUISIANA UNIV	Boyce, J. M.	HQ-EL	Dehon, R.	NSG 7628	2779
32	NORTHERN ARIZONA U	Boyce, J. M.	HQ-EL	Barnes, C. W.	NAGW 355	1124
32	NORTHWESTERN UNIV	Mead, G. D.	GSFC	Stein, S.	NAS 5-27238	2457
32	OHIO STATE UNIV	Stephanides, C. C.	GSFC	Mueller, I. I.	NAS 5-25888	4012
32	OHIO STATE UNIV	Welker, J.	GSFC	Rapp, R. H.	NGR 36-008-161	4020
32	OHIO STATE UNIV	Welker, J.	GSFC	Mueller, I. I.	NSG 5265	4034
32	OKLAHOMA STATE UNIV	Barlow, R. M.	NSTL	Walsh, S. J.	NAS13-184	4123
32	OREGON STATE UNIV	Norman, S. D.	ARC	Frenkel, R. E.	NCA 2-586201	4155
32	OREGON STATE UNIV	Mead, G.	GSFC	Couch, R. W.	NAS 5-27369	4151
32	OREGON STATE UNIV	Phinney, W. C.	JSC	Lawrence, R. D.	NAG 9-2	4149
32	OREGON STATE UNIV	Boyce, J. M.	HQ-EL	Komar, P. D.	NSG 7178	4160
32	PENN STATE U-UNIV PK	Toon, O. B.	ARC	Carlson, T. N.	NCA 2-589001	4258
32	PENN STATE U-UNIV PK	Kouns, C. W.	GSFC	Alexander, S. S.	NAG 5-49	4230

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32	PENN STATE U-UNIV PK	Kouns, C. W.	GSFC	Alexander, S. S.	NAG 5-77	4232
32	PENN STATE U-UNIV PK	Labovitz, M. L.	GSFC	Smith, C. B.	NAS 5-26215	4244
32	PENN STATE U-UNIV PK	Oseroff, H.	GSFC	Petersen, G. W.	NAS 5-26612	4249
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NCC 5-19	4261
32	PENN STATE U-UNIV PK	Quaide, W. L.	HQ-EL	Gold, D. P.	NGL 39-009-010	4263
32	PENN STATE U-UNIV PK	Carter, C. H.	HQ-LB	Alexander, S. S.	NGT 39-009-803	4267
32	POMONA COLLEGE	Quaide, W. L.	HQ-EL	Baird, A. K.	NSG 7566	1337
32	PRINCETON UNIVERSITY	Stephanides, C. C.	GSFC	Morgan, W. J.	NAS 5-25896	3513
32	PRINCETON UNIVERSITY	Mead, G.	GSFC	Morgan, W. J.	NAS 5-27341	3515
32	PRINCETON UNIVERSITY	Quaide, W. L.	HQ-EL	Hargraves, R. B.	NAGW 372	3507
32	PRINCETON UNIVERSITY	Boyce, J. M.	HQ-EL	Judson, S.	NSG 7568	3534
32	PRINCETON UNIVERSITY	Quaide, W. L.	HQ-EL	Judson, S.	NSG 7602	3535
32	PRINCETON UNIVERSITY	Carter, C. H.	HQ-LB	Fels, S. B.	NGT 31-001-801	3522
32	PURDUE UNIVERSITY	Kouns, C. W.	GSFC	Crough, S. T.	NAG 5-231	2585
32	PURDUE UNIVERSITY	Oseroff, H.	GSFC	Hinze, W. J.	NAS 5-26287	2588
32	PURDUE UNIVERSITY	Hatcher, N. M.	JSC	Hoffer, R. M.	NAS 9-15889	2594
32	PURDUE UNIVERSITY	Taylor, L. A.	HQ-EL	Lipschutz, M. E.	NGL 15-005-140	2601
32	RICE UNIVERSITY	Dietrich, J. W.	JSC	Heymann, D.	NGL 44-006-127	4451
32	RICE UNIVERSITY	Quaide, W. L.	HQ-EL	Clayton, D. D.	NSG 7361	4460
32	RUTGERS U-N BRUNSWK	Warner, J. L.	JSC	Klein, L. C.	NSG 9065	3544
32	RUTGERS U-N BRUNSWK	Taylor, L. A.	HQ-EL	Herzog, G. F.	NAGW 142	3540
32	RUTGERS U-N BRUNSWK	Quaide, W. L.	HQ-EL	Herzberg, C. T.	NAGW 177	3541
32	RUTGERS U-N BRUNSWK	Taylor, L. A.	HQ-EL	Hewins, R. H.	NSG 7327	3542
32	RUTGERS U-N BRUNSWK	Boyce, J. M.	HQ-EL	Zebib, A.	NSG 7601	3543
32	SO DAKOTA SCHL MINES	Dietrich, J. W.	JSC	Papike, J. J.	NAG 9-22	4349
32	SOUTHERN METHODIST U	Blanchard, D. P.	JSC	Dungan, M. A.	NAS 9-16140	4463
32	SOUTHERN METHODIST U	Carter, C. H.	HQ-LB	Dungan, M. A.	NGT 44-007-800	4465
32	STANFORD UNIVERSITY	Welker, J.	GSFC	Nur, A. M.	NAG 5-178	1443
32	STANFORD UNIVERSITY	Broderick, J.	GSFC	Lyon, R. J.	NAS 5-24232	1462
32	STANFORD UNIVERSITY	Broderick, J.	GSFC	Rich, E. I.	NAS 5-24479	1465
32	STANFORD UNIVERSITY	Boyce, J. M.	HQ-EL	Liebes, S.	NAGW 128	1452
32	STANFORD UNIVERSITY	Quaide, W. L.	HQ-EL	Tyler, G. L.	NAGW 341	1460
32	STANFORD UNIVERSITY	Boyce, J. M.	HQ-EL	Howard, H. T.	NGR 05-020-649	1550
32	STATE UNIV NY-ALBANY	Kouns, C. W.	GSFC	Dewey, J. F.	NAG 5-24	3758
32	STATE UNIV NY-ALBANY	Kouns, C. W.	GSFC	Burke, K.	NAG 5-155	3759
32	STATE UNIV NY-ALBANY	Mead, G. D.	GSFC	Dewey, J. F.	NAS 5-27227	3760
32	STATE UNIV NY-ALBANY	Boyce, J. M.	HQ-EL	Anderson, D. M.	NASW 3333	3768
32	STATE U NY-BINGHAMTN	Welker, J. E.	GSFC	Dickman, S. R.	NAG 5-145	3773
32	STATE U NY-BINGHAMTN	Welker, J. E.	GSFC	Wu, F. T.	NAG 5-240	3774
32	STATE UNIV NY-BUFFAL	Boyce, J. A.	HQ-EL	Anderson, D.	NAGW 330	3782
32	STATE UNIV NY-BUFFAL	Boyce, J. M.	HQ-EL	Shapiro, I. I.	NGR 33-015-108	3784
32	STATE U NY-STONY BRK	Cohen, S. C.	GSFC	Melosh, H. J.	NAG 5-7	3787
32	STATE U NY-STONY BRK	Welker, J.	GSFC	Melosh, H. J.	NAG 5-151	3788
32	STATE U NY-STONY BRK	Quaide, W. L.	HQ-EL	Schaeffer, O. A.	NAGW 25	3791
32	STATE U NY-STONY BRK	Quaide, W. L.	HQ-EL	Melosh, H. J.	NAGW 50	3792
32	STATE U NY-STONY BRK	Boyce, J. M.	HQ-EL	Owen, T.	NSG 7553	3817
32	STATE U NY-STONY BRK	Carter, C. H.	HQ-LC	Papike, J. J.	NGT 33-015-800	3810
32	TEXAS A&I UNIVERSITY	Demel, K. J.	JSC	Greegor, D.	NAS 9-16718	4468
32	TEXAS A&M UNIVERSITY	Blanchard, B.	GSFC	Newton, R. W.	NAG 5-31	4482
32	TEXAS A&M UNIVERSITY	Kouns, C. W.	GSFC	Jones, G. M.	NAG 5-94	4483
32	TEXAS A&M UNIVERSITY	Toll, D.	GSFC	Miller, L.	NAS 5-25846	4486
32	TEXAS A&M UNIVERSITY	Chang, A. T.	GSFC	McFarland, J.	NSG 5134	4530
32	TEXAS A&M UNIVERSITY	Carter, C. H.	HQ-LB	McGrail, D. W.	NGT 44-001-801	4525
32	TEXAS TECH UNIV	Halstead, T. W.	HQ-EB	Hartman, H. B.	NSG 7435	4538
32	UNIV ALA-HUNTSVILLE	West, G. W.	MSFC	Hung, R. J.	NAS 8-33726	1046
32	UNIV ALASKA-FAIRBNKS	Wilson, D. E.	ARC	George, T. H.	NCA 2-20201	1085
32	UNIV OF ARIZONA	Musick, H. B.	NSTL	Hutchinson, C. F.	NAS13-198	1190
32	UNIV OF ARIZONA	Devincenzi, D. L.	HQ-EB	Nagy, B.	NGR 03-002-171	1196
32	UNIV OF ARIZONA	Boyce, J. M.	HQ-EL	Woronow, A.	NAGW 134	1152
32	UNIV OF ARIZONA	Boyce, J. M.	HQ-EL	Strom, R.	NAGW 135	1153

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32	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Hubbard, W. B.	NAGW 192	1156
32	UNIV OF ARIZONA	Taylor, L. A.	HQ-EL	Drake, M. J.	NAGW 220	1157
32	UNIV OF ARIZONA	Boyce, J. M.	HQ-EL	Baker, V.	NAGW 285	1162
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Sonett, C. P.	NGR 03-002-370	1200
32	UNIV OF ARIZONA	Taylor, L. A.	HQ-EL	Wilkening, L. L.	NSG 7011	1206
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Sonett, C. P.	NSG 7020	1207
32	UNIV OF ARIZONA	Boyce, J. M.	HQ-EL	Strom, R. G.	NSG 7146	1213
32	UNIV OF ARIZONA	Taylor, L. A.	HQ-EL	Zellner, B. H.	NSG 7249	1214
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Levy, E. H.	NSG 7419	1217
32	UNIV OF ARIZONA	Taylor, L. A.	HQ-EL	Boynton, W. V.	NSG 7436	1218
32	UNIV OF ARIZONA	Boyce, J. M.	HQ-EL	Woronow, A.	NSG 7544	1221
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Drake, M. J.	NSG 7576	1225
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Drake, M. J.	NSG 7577	1226
32	UNIV OF ARIZONA	Quaide, W. L.	HQ-EL	Lebofsky, L.	NSG 7607	1227
32	UNIV ARKANSAS-FAYETV	Duke, M. B.	JSC	MacDonald, H. C.	NAG 9-3	1230
32	UNIV ARKANSAS-FAYETV	Taylor, L. A.	HQ-EL	Sears, D. W.	NAGW 296	1231
32	UNIV CALIF-BERKELEY	Wales, R. O.	GSFC	Anderson, K. A.	NAS 5-22307	1605
32	UNIV CALIF-BERKELEY	Devincenzi, D. L.	HQ-EB	Calvin, M.	NGL 05-003-003	1645
32	UNIV CALIF-DAVIS	Pollack, J. B.	ARC	White, B. R.	NCA 2-180101	1676
32	UNIV CALIF-L ANGELES	Welker, J.	GSFC	Kaula, W. M.	NAG 5-152	1710
32	UNIV CALIF-L ANGELES	Mead, G. D.	GSFC	Jackson, D. D.	NAS 5-26895	1734
32	UNIV CALIF-L ANGELES	Mead, G. D.	GSFC	Bird, G. P.	NAS 5-26957	1735
32	UNIV CALIF-L ANGELES	Welker, J.	GSFC	Kaula, W. M.	NSG 5263	1764
32	UNIV CALIF-L ANGELES	Wales, R.	GSFC	Crooker, N.	NSG 5351	1766
32	UNIV CALIF-L ANGELES	Devincenzi, D. L.	HQ-EB	Kaplan, I. R.	NGR 05-007-221	1749
32	UNIV CALIF-L ANGELES	Devincenzi, D. L.	HQ-EB	Schopf, J. W.	NGR 05-007-407	1755
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Russell, C. T.	NAGW 311	1720
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Kaula, W. M.	NGL 05-007-002	1745
32	UNIV CALIF-L ANGELES	Boyce, J. M.	HQ-EL	Schubert, G.	NGR 05-007-317	1751
32	UNIV CALIF-L ANGELES	Taylor, L. A.	HQ-EL	Wasson, J. T.	NGR 05-007-329	1753
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Coleman, P. J., Jr.	NGR 05-007-351	1754
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Schubert, G.	NSG 7315	1772
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Busse, F. W.	NSG 7484	1775
32	UNIV CALIF-L ANGELES	Quaide, W. L.	HQ-EL	Shubert, G.	NSG 7583	1777
32	UNIV CALIF-L ANGELES	Schmerling, E. R.	HQ-EZ	Schopf, J. W.	NSG 7489	1776
32	UNIV CALIF-SAN DIEGO	Welker, J.	GSFC	Berger, J.	NAG 5-11	1784
32	UNIV CALIF-SAN DIEGO	Mead, G. D.	GSFC	Agnew, D. C.	NAS 5-27228	1814
32	UNIV CALIF-SAN DIEGO	Mead, G. D.	GSFC	Jordan, T. H.	NAS 5-27234	1815
32	UNIV CALIF-SAN DIEGO	Wales, W. W.	MSFC	Arnold, J. R.	NAS 8-35037	1821
32	UNIV CALIF-SAN DIEGO	Devincenzi, D. L.	HQ-EB	Miller, S. L.	NAGW 20	1796
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-EL	Suess, H.	NAGW 103	1800
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-EL	Arnold, J. R.	NAGW 210	1802
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-EL	Arrhenius, G.	NGL 05-009-002	1831
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-EL	Arnold, J. R.	NGR 05-005-005	1834
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-EL	Arnold, J. R.	NSG 7027	1843
32	UNIV CALIF-SAN DIEGO	Quaide, W. L.	HQ-EL	Alfven, H.	NSG 7102	1844
32	UNIV CALIF-SAN DIEGO	Taylor, L. A.	HQ-EL	MacDougall, J. D.	NSG 7121	1845
32	UNIV CALIF-SAN FRAN	Geib, D. S.	HQ-EB	Calvin, M.	NAGW 307	1854
32	UNIV CALIF-S BARBARA	Lowman, P. D., Jr.	GSFC	Estes, J. E.	NAG 5-177	1892
32	UNIV CALIF-S BARBARA	Chang, A.	GSFC	Estes, J. E.	NCC 5-5	1905
32	UNIV CALIF-S BARBARA	Amsbury, D. L.	JSC	Strahler, A. H.	NAS 9-15509	1897
32	UNIV CALIF-S BARBARA	MacDonald, R. B.	JSC	Estes, J. E.	NAS 9-16077	1898
32	UNIV CALIF-S BARBARA	Quaide, W. L.	HQ-EL	Peale, S. J.	NGR 05-010-062	1906
32	UNIV CALIF-S BARBARA	Quaide, W. L.	HQ-EL	Fuller, M. D.	NSG 7586	1914
32	UNIV OF CHICAGO	Taylor, L. A.	HQ-EL	Anders, E.	NGL 14-001-010	2491
32	UNIV OF CHICAGO	Taylor, L. A.	HQ-EL	Turkevich, A. L.	NGR 14-001-135	2497
32	UNIV OF CHICAGO	Taylor, L. A.	HQ-EL	Grossman, L.	NGR 14-001-249	2501
32	UNIV OF CHICAGO	Quaide, W. L.	HQ-EL	Schramm, D. N.	NSG 7212	2504
32	UNIV COLORADO-BOLDR	Kouns, C. W.	GSFC	Whitcomb, J. H.	NAG 5-21	2042
32	UNIV COLORADO-BOLDR	Kouns, C. W.	GSFC	Whitcomb, J. H.	NAG 5-22	2043

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32	UNIV COLORADO-BOLDR	Stephanides, C. C.	GSFC	Smith, M. L.	NAS 5-25887	2073
32	UNIV COLORADO-BOLDR	Oseroff, H.	GSFC	Benton, E. R.	NAS 5-25957	2074
32	UNIV COLORADO-BOLDR	Mead, G. D.	GSFC	Wyss, M.	NAS 5-27236	2080
32	UNIV COLORADO-BOLDR	Mead, G. D.	GSFC	Whitcomb, J. H.	NAS 5-27370	2082
32	UNIV COLORADO-BOLDR	Quaide, W. L.	HQ-EL	Spetzler, H. A.	NSG 7584	2107
32	UNIV OF FLORIDA	Atwell, B. H.	NSTL	Hetrick, V.	NAS13-167	2288
32	UNIV OF GEORGIA	Atwell, B. H.	NSTL	Welch, R.	NAS13-157	2393
32	UNIV OF GEORGIA	Conner, P. K.	NSTL	Welch, R.	NAS13-190	2394
32	UNIV OF GEORGIA	Quaide, W. L.	HQ-EL	Wenner, D. B.	NSG 7433	2395
32	UNIV OF GEORGIA	Boyce, J. M.	HQ-EL	Brook, G.	NSG 7539	2396
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	McCord, T. B.	NAGW 37	2402
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	Hawke, R. B.	NAGW 42	2403
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	Clark, R. N.	NAGW 115	2405
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HQ-EL	Fanele, F.	NAGW 133	2406
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HQ-EL	Morrison, D.	NAGW 136	2407
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	Fanale, F.	NAGW 171	2409
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HQ-EL	Hawke, B. R.	NAGW 237	2410
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	Fanale, F. P.	NAGW 348	2412
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HQ-EL	Hawke, B. R.	NASW 3566	2419
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	McCord, T. B.	NSG 7312	2425
32	UNIV OF HAWAII-MANOA	Boyce, J. M.	HQ-EL	Pilcher, C. B.	NSG 7403	2427
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	Gaffey, M. J.	NSG 7462	2428
32	UNIV OF HAWAII-MANOA	Quaide, W. L.	HQ-EL	Gaffey, M. J.	NSG 7597	2431
32	UNIV HOUSTON-HOUSTON	Devincenzi, D. L.	HQ-EB	Oro, J.	NGR 44-005-002	4552
32	UNIV HOUSTON-HOUSTON	Boyce, J. M.	HQ-EL	King, E. A.	NAGW 169	4542
32	UNIV HOUSTON-HOUSTON	Quaide, W. L.	HQ-EL	King, E. A.	NAGW 178	4543
32	UNIV HOUSTON-HOUSTON	Boyce, J. M.	HQ-EL	Smith, R.	NSG 7551	4560
32	UNIV OF IDAHO	Peterson, D. L.	ARC	Ulliman, J. J.	NCA 2-310201	2435
32	UNIV OF IOWA	Oseroff, H.	GSFC	Carmichael, R. S.	NAS 5-26425	2670
32	UNIV OF KANSAS	Chang, A. T.	GSFC	Ulaby, F. T.	NAG 5-163	2702
32	UNIV OF KANSAS	Paris, J. F.	JSC	Ulaby, F. T.	NAS 9-16419	2716
32	UNIV OF KANSAS	Atwell, B. H.	NSTL	Martinko, E. A.	NAS13-166	2719
32	UNIV MARYLAND-COL PK	Frey, H.	GSFC	Trasco, J. D.	NAG 5-245	2860
32	UNIV MARYLAND-COL PK	Masuoka, E. J.	GSFC	Chang, L.	NSG 5423	2950
32	UNIV MARYLAND-COL PK	Quaide, W. L.	HQ-EL	Roosen, J. G.	NSG 7046	2951
32	UNIV OF MASS-AMHERST	Oserhoff, H.	GSFC	Haggerty, S. E.	NAS 5-26414	3199
32	UNIV OF MASS-AMHERST	Dietrich, J. W.	JSC	Rhodes, J. M.	NSG 9069	3205
32	UNIV OF MASS-AMHERST	Quaide, W. L.	HQ-EL	Huguenin, R. L.	NAGW 40	3195
32	UNIV OF MASS-AMHERST	Boyce, J. M.	HQ-EL	McGill, G. E.	NGR 22-010-076	3201
32	UNIV OF MASS-AMHERST	Boyce, J. M.	HQ-EL	Huguenin, R. L.	NSG 7405	3203
32	UNIV OF MASS-AMHERST	French, B. M.	HQ-EL	Haggerty, S. E.	NSG 7549	3204
32	UNIV OF MIAMI	Oseroff, H.	GSFC	Harrison, C. G.	NAS 5-26201	2309
32	UNIV MICH-ANN ARBOR	Jones, H. W.	ARC	Taketa, R.	NCA 2-440101	3305
32	UNIV MICH-ANN ARBOR	Devincenzi, D. L.	HQ-EB	Hayes, J. M.	NAGW 252	3266
32	UNIV MICH-ANN ARBOR	Carter, C. H.	HQ-LB	Olson, C. E.	NGT 23-005-800	3313
32	U MINN-MNPLS-ST PAUL	Dietrich, J. W.	JSC	Weiblen, P. W.	NSG 9050	3358
32	UNIV MO-COLUMBIA	Joyce, A. T.	NSTL	Pirog, R.	NAS13-174	3394
32	UNIV MO-COLUMBIA	Boyce, J. M.	HQ-EL	Whitford-stark, J. L.	NAGW 170	3388
32	UNIV MO-COLUMBIA	Boyce, J. M.	HQ-EL	Whiford-stark, J. L.	NAGW 243	3389
32	UNIV MO-ROLLA	Atwell, B. H.	NSTL	Elifrits, C. D.	NAS13-150	3404
32	UNIV MO-ST LOUIS	Quaide, W. L.	HQ-EL	James, P. B.	NSG 7563	3410
32	UNIV NEB-OMAHA	Patterson, F. A.	NSTL	Rundquist, D. C.	NAS13-168	3448
32	UNIV NEW HAMP-DURHAM	Lynch, J. T.	HQ-EE	Moore, J. T.	NAGW 52	3471
32	UNIV OF NEW MEXICO	French, B. M.	HQ-EL	Keil, K.	NGL 32-004-064	3571
32	UNIV OF NEW MEXICO	Boyce, J. M.	HQ-EL	Elston, W. E.	NGR 32-004-062	3572
32	UNIV OF NORTH DAKOTA	Boyce, J. L.	HQ-EL	Karner, F. R.	NAGW 151	3886
32	UNIV OREGON-EUGENE	Quaide, W. L.	HQ-EL	Weill, D. F.	NGR 38-003-020	4166
32	UNIV OF PITTSBURGH	Kouns, C. W.	GSFC	Lidiak, E. G.	NSG 5270	4310
32	UNIV OF PITTSBURGH	Quaide, W. L.	HQ-EL	Hapke, B.	NSG 7631	4312
32	UNIV OF RHODE ISLAND	Devincenzi, D. L.	HQ-EB	Abell, P. I.	NAGW 206	4332

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32	UNIV OF RHODE ISLAND	Boyce, J. M.	HQ-EL	Boothroyd, J. C.	NSG 7414	4334
32	UNIV OF SOUTHERN CAL	Quaide, W. L.	HQ-EL	Sammis, C. G.	NAGW 43	1978
32	UNIV OF SOUTHERN CAL	Quaide, W. L.	HQ-EL	Dabrowski, A. J.	NSG 7535	2003
32	UNIV TENNESSEE-KNOXV	Williams, R.	JSC	Taylor, L. A.	NGT 43-001-800	4383
32	UNIV TENNESSEE-KNOXV	Quaide, W. L.	HQ-EL	McSween, H. Y.	NSG 7413	4391
32	UNIV TENNESSEE-KNOXV	Carter, C. H.	HQ-LB	Taylor, L. A.	NGT 43-001-803	4386
32	UNIV TEXAS-AUSTIN	Stephanides, C. C.	GSFC	Shelus, P. J.	NAS 5-25898	4585
32	UNIV TEXAS-AUSTIN	Mead, G. D.	GSFC	Tapley, B. D.	NAS 5-26955	4588
32	UNIV TEXAS-AUSTIN	Mead, G. D.	GSFC	Shelus, P. J.	NAS 5-27235	4589
32	UNIV TEXAS-AUSTIN	Blanchard, D. P.	JSC	Muehlberger, W. R.	NAG 9-11	4581
32	UNIV TEXAS-AUSTIN	Boyce, J. M.	HQ-EL	Smith, R. S.	NAGW 286	4583
32	UNIV TEXAS-AUSTIN	Quaide, W. L.	HQ-EL	Smoluchowski, R.	NSG 7505	4627
32	UNIV TEXAS-AUSTIN	Boyce, J. M.	HQ-EL	Baker, V.	NSG 7557	4628
32	UNIV TEXAS-AUSTIN	Carter, C. H.	HQ-LB	Smith, D.	NGT 44-012-800	4614
32	UNIV TEXAS-DALLAS	Oseroff, H.	GSFC	Klumpar, D. M.	NAS 5-26309	4646
32	UNIV TEXAS-EL PASO	Oseroff, H.	GSFC	Keller, E. R.	NAS 5-26326	4660
32	U TEX MED BRANCH-GAL	Stephanides, C. C.	GSFC	Nakamura, Y.	NAS 5-25897	4667
32	U TEX MED BRANCH-GAL	Quaide, W. L.	HQ-EL	Makamura, Y.	NSG 7418	4671
32	UNIV OF UTAH	Lowman, P. D., Jr.	GSFC	Smith, R. B.	NAG 5-164	4689
32	U VERMONT & ST AGR C	Tuyahov, A. J.	HQ-EL	Whitmore, R. A.	NSG 7453	4729
32	UNIV OF VIRGINIA	Quaide, W. L.	HQ-EL	Johnson, R. E.	NAGW 186	4858
32	UNIV OF VIRGINIA	Boyce, J. M.	HQ-EL	Howard, A. D.	NSG 7572	4879
32	UNIV OF WASHINGTON	Dietrich, J. W.	JSC	Adams, J. D.	NSG 9032	5044
32	UNIV OF WASHINGTON	Quaide, W. L.	HQ-EL	Holsapple, K. A.	NAGW 328	5014
32	UNIV OF WASHINGTON	Quaide, W. L.	HQ-EL	Adams, J. B.	NSG 7173	5041
32	UNIV OF WASHINGTON	Quaide, W. L.	HQ-EL	McCallum, I. S.	NSG 7313	5042
32	UNIV OF WASHINGTON	Vitale, J. A.	HQ-ET	Adams, J. B.	NAGW 85	5009
32	UNIV WISC-MADISON	Oseroff, H.	GSFC	Bentley, C. R.	NAS 5-25977	5099
32	UNIV OF WYOMING	Quaide, W. L.	HQ-EL	Shive, P. N.	NAGW 174	5135
32	UTAH STATE UNIV	Devincenzi, D. L.	HQ-EB	Smith, G. G.	NSG 7038	4722
32	VA MILITARY INST	Quaide, W. L.	HQ-EL	Schreiber, H. D.	NAGW 213	4885
32	VA MILITARY INST	Quaide, W. L.	HQ-EL	Schreiber, H. D.	NSG 7355	4886
32	VIRGINIA POLY INST	Masouka, E.	GSFC	Haralick, R.	NAG 5-131	4937
32	WASHINGTON ST UNIV	Taylor, L. A.	HQ-EL	Srinivasan, B.	NAGW 234	5048
32	WASHINGTON UNIVERSTY	Stuart, L.	GSFC	Arvidson, R. E.	NAS 5-26533	3420
32	WASHINGTON UNIVERSTY	Duke, M. B.	JSC	Arvidson, R. E.	NAG 9-24	3415
32	WASHINGTON UNIVERSTY	Dietrich, J. W.	JSC	Haskin, L. A.	NSG 9055	3434
32	WASHINGTON UNIVERSTY	Quaide, W. L.	HQ-EL	Haskin, L. A.	NAGW 179	3417
32	WASHINGTON UNIVERSTY	Quaide, W. L.	HQ-EL	Hohenberg, C. M.	NSG 7016	3428
32	WASHINGTON UNIVERSTY	Boyce, J. M.	HQ-EL	Arvidson, R. E.	NSG 7087	3429
32	WASHINGTON UNIVERSTY	Boyce, J. M.	HQ-EL	Arvidson, R. E.	NSG 7545	3432
32	WASHINGTON UNIVERSTY	Quaide, W. L.	HQ-EL	Goettal, K. A.	NSG 7578	3433
32	WESLEYAN UNIVERSITY	Boyce, J. M.	HQ-EL	Patton, P. C.	NAGW 244	2138
32	WOODSHOLE OCEAN INST	Fimmel, R. O.	ARC	Bowin, C. O.	NAG 2-91	3208
32	WOODSHOLE OCEAN INST	Smith, D. E.	GSFC	Brown, C.	NAG 5-18	3210
32	WOODSHOLE OCEAN INST	Rao, D. B.	GSFC	Gaddy, G. T.	NAG 5-185	3211
32	WORCESTER POLY INST	Quaide, W. L.	HQ-EL	Plumb, R. C.	NAGW 325	3219
32	YALE UNIVERSITY	Quaide, W. L.	HQ-EL	Longhi, J.	NAGW 175	2143
33	CASE WESTERN RESERVE	Powell, J. A.	LERC	Fung, C. D.	NAG 3-301	3932
33	CITY COLLEGE OF N Y	Schroeder, L. C.	LARC	Pierson, W. J.	NAS 1-15669	3584
33	CITY U N Y-GRAD SCHL	McGoldrick, L. F.	HQ-EB	Pierson, W. J.	NAGW 266	3591
33	FLORIDA STATE UNIV	Rao, D. B.	GSFC	O'brien, J. J.	NAG 5-219	2251
33	FLORIDA STATE UNIV	Chase, R. P.	HQ-EB	Clark, A. J.	NAGW 221	2252
33	FLORIDA STATE UNIV	Carder, K. L.	HQ-EE	O'brien, J. J.	NGT 10-004-800	2255
33	HARVARD UNIVERSITY	Leito, C. D.	GSFC	Robinson, A. R.	NAS 6-3182	3010
33	HARVARD UNIVERSITY	Halem, M.	GSFC	Robinson, A. R.	NSG 5228	3027
33	HARVARD UNIVERSITY	Toth, R. A.	HQ-EB	McElroy, M.	NASW 2952	3013
33	JOHNS HOPKINS UNIV	Huang, N. E.	GSFC	Phillips, O. M.	NAS 6-3162	2815
33	JOHNS HOPKINS UNIV	McGoldrick, L. F.	HQ-EE	Phillips, O. M.	NAGW 304	2810
33	LA ST U&A&M COL-BRGE	Carter, C. H.	HQ-LB	Rouse, L. J., Jr.	NGT 19-001-800	2773

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33	MASS INST OF TECH	Leitao, C. D.	GSFC	Wunch, C.	NAG 6-9	3088
33	MASS INST OF TECH	McGoldrick, L. F.	HQ-EB	Harrison, D. E.	NGT 22-009-900	3149
33	NO CAROLINA STATE U	Huang, N. E.	GSFC	Tung, C.	NAS 6-3018	3868
33	NO CAROLINA STATE U	Carder, K. L.	HQ-EE	Kamykowski, D.	NAGW 367	3865
33	NOVA UNIVERSITY	Kirk, R. G.	GSFC	Witte, J. M.	NAS 5-26714	2259
33	OLD DOMINION UNIV	Schroeder, L. C.	LARC	Stoughton, J. W.	NAG 1-111	4780
33	OLD DOMINION UNIV	Croswell, W. F.	LARC	Oertel, G. F.	NAG 1-189	4786
33	OREGON STATE UNIV	Carder, K. L.	HQ-EE	Small, L. F.	NAGW 305	4150
33	STANFORD UNIVERSITY	McGoldrick, L. F.	HQ-EE	Peterson, A. M.	NAGW 361	1461
33	STATE U NY-STONY BRK	Esaias, W. E.	LARC	Wilson, R. E.	NAS 1-16607	3797
33	TEXAS A&M UNIVERSITY	Huang, N.	GSFC	Ichiye, T.	NAS 6-2884	4488
33	UNIV CALIF-DAVIS	Rao, D. B.	GSFC	Powell, T.	NAG 5-217	1674
33	UNIV CALIF-SAN DIEGO	Nelsen, D.	GSFC	Austin, R. W.	NAS 5-25450	1810
33	UNIV CALIF-SAN DIEGO	Szajna, E. F.	GSFC	Austin, R. W.	NAS 5-26249	1811
33	UNIV CALIF-SAN DIEGO	Esaias, W. E.	LARC	Smith, R. C.	NSG 1641	1838
33	UNIV CALIF-S BARBARA	Hoge, F. E.	GSFC	Smith, R. C.	NAG 6-14	1893
33	UNIV CALIF-S BARBARA	Carder, K. L.	HQ-EE	Smith, R. C.	NAGW 290	1895
33	UNIV COLORADO-BOLDR	Carder, K. L.	HQ-EE	Barry, R. G.	NAGW 363	2069
33	UNIV OF DELAWARE	Huang, N. E.	GSFC	Klemas, V.	NAS 5-26915	2160
33	UNIV OF HAWAII-MANOA	McGoldrick, L. F.	HQ-EE	McCord, T. B.	NAGW 318	2411
33	UNIV OF KANSAS	Schroeder, L. C.	LARC	Shanmugam, K. S.	NAG 1-117	2687
33	UNIV OF KANSAS	Schroeder, L. C.	LARC	Moore, R. K.	NSG 1397	2731
33	UNIV OF KANSAS	Carder, K. L.	HQ-EE	Onstott, R. G.	NAGW 334	2710
33	UNIV MD-EASTRN SHORE	Huang, N. E.	GSFC	Dudis, J. J.	NAG 5-602	2955
33	UNIV OF MASS-AMHERST	McGoldrick, L. F.	HQ-EB	McIntosh, R. E.	NAGW 276	3196
33	UNIV OF MASS-AMHERST	McGoldrick, L. F.	HQ-EB	Swift, C. T.	NAGW 287	3197
33	UNIV OF MIAMI	Hoge, F. E.	GSFC	Zika, R. G.	NAG 6-13	2305
33	UNIV OF MIAMI	Rao, D. B.	GSFC	Williams, F.	NSG 5344	2321
33	UNIV OF MIAMI	Carder, K. L.	HQ-EB	Hirschberg, J. G.	NAGW 258	2306
33	UNIV OF MIAMI	Carder, K. L.	HQ-EB	Gordan, H. R.	NAGW 273	2307
33	UNIV NEW HAMP-DURHAM	McGoldrick, L. R.	HQ-EB	Pettigrew, N. R.	NAGW 271	3473
33	UNIV OF PENNSYLVANIA	Turkiewicz, J.	GSFC	Haber, F.	NAS 5-27353	4287
33	UNIV OF RHODE ISLAND	Campbell, J. W.	LARC	Spaulding, M. L.	NSG 1495	4333
33	UNIV OF SOUTHERN CAL	Carder, K. L.	HQ-EE	Kiefer, D.	NAGW 317	1988
33	UNIV OF SOUTHERN CAL	Carder, K. L.	HQ-EE	Pieper, R. E.	NAGW 335	1989
33	UNIV OF WASHINGTON	Rao, D. B.	GSFC	Rothrock, D. A.	NAG 5-160	4994
33	UNIV OF WASHINGTON	Rao, D. B.	GSFC	Martin, S.	NAG 5-161	4995
33	UNIV OF WASHINGTON	Grantham, W. L.	LARC	Brown, R. A.	NAG 1-149	4984
33	UNIV OF WASHINGTON	McGoldrick, L. F.	HQ-EE	Brown, R. A.	NAGW 303	5013
33	UNIV OF WASHINGTON	McGoldrick, L. F.	HQ-EE	Katsaros, K. B.	NAGW 366	5015
33	UNIV WISC-MADISON	Schroeder, L. C.	LARC	Hinton, B. B.	NAG 1-118	5066
33	UNIV WISC-MILWAUKEE	Rao, D. B.	GSFC	Mortimer, C. H.	NAG 5-209	5129
33	WOODSHOLE OCEAN INST	Halem, M.	GSFC	Haidvogel, D. B.	NAG 5-8	3209
33	WOODSHOLE OCEAN INST	Hoge, F. E.	GSFC	Zafiriou, O. C.	NAS 6-3166	3217
33	WOODSHOLE OCEAN INST	Aliario, F.	LARC	Joyce, T. M.	NAG 1-91	3207
33	WOODSHOLE OCEAN INST	Saias, W. E.	LARC	Beardsley, R. C.	NAS 1-16606	3215
33	WOODSHOLE OCEAN INST	McGoldrick, L. F.	HQ-EB	Chase, R. R.	NAGW 265	3213
33	WOODSHOLE OCEAN INST	McGoldrick, L. F.	HQ-EB	Joyce, T. M.	NAGW 272	3214
33	WOODSHOLE OCEAN INST	McGoldrick, L. F.	HQ-EB	Hollister, C. D.	NGT 22-014-800	3218
39	ALABAMA A&M UNIV	Mooneyhan, D. W.	NSTL	Montgomery, O. L.	NAG 8-1	1000
39	ALABAMA A&M UNIV	Mooneyhan, D. W.	NSTL	Montgomery, O. L.	NAG 8-13	1001
39	ATHENS STATE COLLEGE	Fogle, V.	MSFC	Holland, L. R.	NAS 8-34432	1009
39	BOSTON COLLEGE	Birmingham, T. J.	HQ-EZ	Carovillano, R. L.	NSG 7468	2972
39	BOSTON UNIVERSITY	Smith, C.	ARC	Ventres, C. S.	NAG 2-179	2974
39	BRIGHAM YOUNG UNIV	Gordon, F.	GSFC	Miller, W.	NAS 5-26473	4684
39	CAL POLY ST U-S LUIS	Peterson, D. L.	ARC	Pillsbury, N.	NCA 2-678001	1313
39	CITY COLLEGE OF N Y	Hess, R. V.	LARC	Tchen, C. M.	NSG 1485	3588
39	COLORADO STATE UNIV	Cherrix, G. T.	GSFC	Vonderhaar, T. H.	NAS 5-22959	2021
39	COLORADO STATE UNIV	Toll, D.	GSFC	Maxwell, E. L.	NAS 5-25696	2022
39	CORNELL UNIVERSITY	Wydeven, T.	ARC	Shuler, M. L.	NSG 2408	3674

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39	CORNELL UNIVERSITY	Vitale, J. A.	HQ-ET	Philipson, W. R.	NGL 33-010-171	3661
39	FORT VALLEY STATE C	Wolverton, B. C.	NSTL	Brown, N. B.	NSG 735	2331
39	GEORGIA INST OF TECH	Szajna, E. F.	GSFC	Cunwold, D. M.	NAS 5-25817	2356
39	HAMPTON INSTITUTE	Harris, R. C.	LARC	Leung, W. H.	NAG 1-122	4761
39	HAMPTON INSTITUTE	Poole, L. R.	LARC	Venable, D. D.	NCC 1-11	4765
39	HOWARD UNIVERSITY	Rango, A.	GSFC	Day, B.	NAG 5-224	2213
39	HOWARD UNIVERSITY	Okeefe, J. A.	GSFC	Thorpe, A. M.	NAS 5-25185	2220
39	HUMBOLDT STATE UNIV	Carter, C. H.	HQ-LB	Fox, L., III	NGT 05-060-800	1336
39	IMPERIAL C SCI & TEC	Hingst, W.	LERC	Whitelaw, R.	NASW 3631	5153
39	JACKSON STATE UNIV	Wolverton, B. C.	NSTL	Shores, F.	NSG 8026	3362
39	KANSAS STATE UNIV	Browne, I. D.	JSC	Kanemasu, E. T.	NAS 9-16457	2683
39	MASS INST OF TECH	Wang, J. R.	GSFC	Kong, J. A.	NAG 5-141	3081
39	MICHIGAN STATE UNIV	Tuyahoy, J.	HQ-EL	Boylan, M. G.	NGL 23-004-083	3232
39	MISSISSIPPI STATE U	Vitale, J. A.	HQ-ET	Miller, W. F.	NGL 25-001-054	3375
39	MONTANA STATE UNIV	Whitehead, V. S.	JSC	Caprio, J. M.	NAS 9-18007	3436
39	MORGAN STATE UNIV	Tucker, C. J.	GSFC	Fan, C. J.	NAG 5-12	2828
39	NEW MEX ST U-LAS CR	Fenner, R. G.	JSC	Carver, K.	NAS 9-95509	3557
39	NEW MEX ST U-LAS CR	Farris, G. W.	JSC	Carver, K. R.	NAS 9-95514	3558
39	NEW MEX ST U-LAS CR	Nitschke, H. A.	JSC	Blevins, B.	NAS 9-95519	3559
39	NEW MEX ST U-LAS CR	Nitschke, H. A.	JSC	Waterman, A.	NAS 9-95522	3560
39	NEW MEX ST U-LAS CR	Pels, G. F.	JSC	Carver, K. R.	NAS 9-95539	3561
39	NEW MEX ST U-LAS CR	Nitchke, H. A.	JSC	Blevins, B.	NAS 9-95541	3562
39	OLD DOMINION UNIV	Browne, T. D.	JSC	Chhikara, R. S.	NAS 9-16431	4803
39	OLD DOMINION UNIV	Orr, H. D.	LARC	Kinole, E. C.	NCC 1-34	4809
39	OREGON STATE UNIV	Wilson, D. E.	ARC	Isaacson, D. L.	NCA 2-586101	4154
39	OREGON STATE UNIV	Tuyahov, A. J.	HQ-EL	Schrumpf, B. J.	NGL 38-002-053	4157
39	PAN AMERICAN UNIV	Pitts, D. E.	JSC	Lemaster, E. W.	NSG 9033	4424
39	PENN STATE U-UNIV PK	Schmugge, T. J.	GSFC	Carlson, T. N.	NAG 5-184	4234
39	PENN STATE U-UNIV PK	Irons, J.	GSFC	Petersen, G. W.	NAS 5-25667	4242
39	PRAIRIE VIEW A&M U	Browne, I. D.	JSC	Brams, E. A.	NSG 9006	4433
39	PURDUE UNIVERSITY	Pitts, D.	JSC	Bauer, M. E.	NAS 9-15466	2593
39	PURDUE UNIVERSITY	Browne, I. D.	JSC	Bauer, M. E.	NAS 9-16528	2595
39	SO DAKOTA STATE UNIV	Schmugge, T. J.	GSFC	Harlan, J. C.	NSG 5396	4354
39	SO DAKOTA STATE UNIV	Vitale, J. A.	HQ-ET	Myers, V. I.	NGL 42-003-007	4353
39	SOUTHWESTERN UNIV	Robbins, D. E.	JSC	Morgan, T. H.	NAS 9-16670	4467
39	STANFORD UNIVERSITY	Schrom, J. S.	HQ-EP	Dunn, D.	NASW 3204	1479
39	STATE UNIV NY-ALBANY	Weinberg, I.	LERC	Corbett, J. W.	NSG 3095	3770
39	STATE UNIV NY-ALBANY	Keller, V. W.	MSFC	Laza, G. G.	NAS 8-32893	3761
39	ST U NY COL-ONEONTA	Kerber, A. G.	GSFC	Baumann, P. R.	NAS 5-25967	3823
39	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	Miller, L. D.	NCC 5-15	4521
39	TEXAS A&M UNIVERSITY	Blanchard, D.	JSC	Randall, J. D.	NAS 9-14828	4503
39	TEXAS A&M UNIVERSITY	Browne, I. D.	JSC	Guseman, L. F., Jr.	NAS 9-16447	4510
39	TEXAS A&M UNIVERSITY	Browne, I. D.	JSC	Guseman, L. F., Jr.	NAS 9-16664	4513
39	TEXAS A&M UNIVERSITY	Browne, I. D.	JSC	Heilman, J. L.	NAS 9-16674	4514
39	UNIV ALASKA-FAIRBNKS	Wilson, D. E.	ARC	George, T. H.	NCA 2-20002	1084
39	UNIV ALASKA-FAIRBNKS	Tuyahon, A. J.	HQ-EL	Miller, J. M.	NGL 02-001-092	1087
39	UNIV ALASKA-FAIRBNKS	Taylor, W. W.	HQ-EZ	Akasofu, S. I.	NSG 7281	1090
39	UNIV OF ARIZONA	Vitale, J. A.	HQ-ET	Johnson, J. D.	NGL 03-002-313	1194
39	UNIV ARKANSAS-FAYETV	Schmugge, T.	GSFC	Halloran, J. W.	NAG 5-20	1229
39	UNIV CALIF-BERKELEY	Linlor, W. I.	ARC	Angelakos, D.	NCA 2-50006	1624
39	UNIV CALIF-BERKELEY	Norman, S. M.	ARC	Snow, T. P.	NCA 2-50103	1627
39	UNIV CALIF-BERKELEY	Browne, I. D.	JSC	Colwell, R. N.	NAS 9-14565	1617
39	UNIV CALIF-BERKELEY	Hancock, K. J.	JSC	Wensel, L. C.	NAS 9-15987	1618
39	UNIV CALIF-BERKELEY	Quaide, W. L.	HQ-EL	Anderson, K. A.	NSG 7127	1663
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HQ-ET	Colwell, R. N.	NSG 7220	1666
39	UNIV CALIF-DAVIS	Cagliostro, D. E.	ARC	Smith, J. M.	NAG 2-129	1673
39	UNIV CALIF-DAVIS	Rango, A.	GSFC	Algazi, V. R.	NSG 5092	1686
39	UNIV CALIF-L ANGELES	Wiskerchen, M. J.	HQ-EE	Coleman, P. J., Jr.	NGL 05-007-004	1746
39	UNIV CALIF-S BARBARA	Norman, S.	ARC	Clayton, C.	NAG 2-20	1886
39	UNIV CALIF-S BARBARA	Norman, S.	ARC	Estes, J. E.	NAG 2-24	1887

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39	UNIV CALIF-S BARBARA	Peterson, D.	ARC	Strahler, A. H.	NCC 2-157	1904
39	UNIV CALIF-S BARBARA	Peterson, D.	ARC	Strahler, A. H.	NSG 2377	1911
39	UNIV CALIF-S BARBARA	Rango, A.	GSFC	Dozier, J.	NSG 5262	1913
39	UNIV CALIF-S BARBARA	Carter, C. H.	HQ-LB	Strahler, A.	NGT 05-010-800	1907
39	UNIV OF CENTRAL FLA	Knott, W. B.	KSC	Madsen, B. C.	NAS10-9841	2262
39	UNIV COLORADO-BOLDR	Jones, C. T.	MSFC	Hart, J. E.	NAS 8-31958	2083
39	UNIV COLORADO-BOLDR	Vitale, J. A.	HQ-ET	Ives, J. D.	NGL 06-003-200	2089
39	UNIV OF DELAWARE	Gervin, J. C.	GSFC	Klemas, V.	NAS 5-26254	2158
39	UNIV OF DELAWARE	Carter, C. H.	HQ-LB	Wu, J.	NGT 08-001-800	2161
39	UNIV OF DENVER	Kunde, V. G.	GSFC	Goldman, A.	NAS 5-26364	2118
39	UNIV OF DENVER	Seals, R. K.	LARC	Murcay, D. G.	NSG 1432	2124
39	UNIV DIST COLUMBIA	Gross, F. C.	GSFC	Phelps, H. L.	NGR 09-050-019	2236
39	UNIV DIST COLUMBIA	Ruitberg, A.	GSFC	Lessin, I.	NGR 09-053-003	2237
39	UNIV OF FLORIDA	Horn, F. W.	KSC	Blazquez, C. H.	NAS10-9666	2284
39	UNIV OF FLORIDA	Knott, W. M.	KSC	Madsen, B. C.	NAS10-10390	2287
39	UNIV OF FLORIDA	Uyahov, J. T.	HQ-EL	Ruth, B. E.	NSG 7236	2301
39	UNIV OF IOWA	Fishman, J.	LARC	Carmichael, G. R.	NAG 1-36	2644
39	UNIV OF KANSAS	Schmugge, T.	GSFC	Ulaby, F. T.	NAG 5-30	2701
39	UNIV OF KANSAS	Paris, J.	JSC	Ulaby, F. T.	NCC 9-4	2729
39	UNIV OF KANSAS	Grantham, W. L.	LARC	Onstott, R. G.	NCC 1-51	2722
39	UNIV OF KANSAS	Tuyahov, A. J.	HQ-EL	Barr, B. G.	NGL 17-004-024	2730
39	UNIV OF KENTUCKY	Vento, D. M.	LERC	Altenkirch, R. A.	NAG 3-258	2752
39	UNIV MARYLAND-COL PK	Rango, A.	GSFC	Ragan, R. M.	NAG 5-9	2843
39	UNIV MARYLAND-COL PK	Uccellini, L. W.	GSFC	Pitter, R. L.	NAG 5-133	2849
39	UNIV MARYLAND-COL PK	Trombka, J. I.	GSFC	Sommer, S. E.	NAS 5-23457	2879
39	UNIV MARYLAND-COL PK	Gervin, J. C.	GSFC	Ragan, R. M.	NAS 5-26650	2890
39	UNIV MARYLAND-COL PK	Browne, I. D.	JSC	Davis, L. S.	NAS 9-16434	2902
39	UNIV MARYLAND-COL PK	Tuyahov, A. J.	HQ-ET	Ragan, R. M.	NAGW 33	2871
39	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Rodenhuis, D. R.	NGT 21-002-809	2930
39	UNIV MD-EASTRN SHORE	Trafford, G. H.	GSFC	Gupta, G. C.	NSG 6034	2965
39	UNIV OF MIAMI	Gibbs, B. P.	ARC	Brown, O.	NCA 2-438101	2315
39	UNIV OF MIAMI	Knott, W.	KSC	Mitsui, A.	NAS10-10531	2314
39	UNIV MICH-ANN ARBOR	Miller, E. R.	MSFC	Carignan, G. R.	NAS 8-32661	3300
39	U MINN-MNPLS-ST PAUL	Whitehead, V. S.	JSC	Lillesand, T. M.	NAS 9-16427	3347
39	U MINN-MNPLS-ST PAUL	Vitale, J. A.	HQ-EL	Hobbie, R. K.	NGL 24-005-263	3350
39	UNIV MO-COLUMBIA	Harnage, M. J.	JSC	Rouse, J. W.	NAS 9-15896	3393
39	UNIV MO-COLUMBIA	Tuyahov, A. J.	HQ-EL	Johannsen, C. J.	NAGW 46	3387
39	UNIV NEBRASKA-LINCLN	Browne, I. D.	JSC	Blad, B. L.	NAS 9-16636	3443
39	UNIV NEBRASKA-LINCLN	Tuyahov, A. J.	HQ-EL	Carlson, M. P.	NGL 28-004-020	3444
39	UNIV NEBRASKA-LINCLN	Carter, C. H.	HQ-LB	Blad, B. L.	NGT 28-004-800	3446
39	UNIV N CAR-CHPL HILL	Harriss, R. C.	LARC	Martens, C. S.	NAG 1-181	3880
39	UNIV N CAR-CHPL HILL	Carter, C. H.	HQ-LB	Martens, C. S.	NGT 34-003-800	3882
39	UNIV OKLAHOMA-NORMAN	Gerlich, J. C.	GSFC	Nazur, V.	NCC 5-600	4139
39	UNIV OF SANTA CLARA	Jones, H. W., Jr.	ARC	Alkhatib, H.	NCA 2-685101	1954
39	UNIV SO CAROLINA-COL	Vitale, J. A.	HQ-ET	Roberson, R. E.	NSG 7504	4348
39	UNIV TEXAS-AUSTIN	Stencel, R. E.	HQ-EZ	Wheeler, J. C.	NSG 7232	4623
39	UNIV OF UTAH	Tuyahov, A. J.	HQ-EL	Ursenbach, W. O.	NAGW 95	4693
39	UNIV OF UTAH	Vitale, J. A.	HQ-ET	Ridd, M. K.	NSG 7226	4700
39	UNIV OF WASHINGTON	Wilson, D. E.	ARC	Shinn, R. D.	NCA 2-850001	5026
39	UNIV OF WASHINGTON	Wilson, D. E.	ARC	Westerlund, F. V.	NCA 2-850002	5027
39	UNIV OF WASHINGTON	Lumb, D. R.	ARC	Shinn, R. D.	NCA 2-850101	5028
39	UNIV WISC-MADISON	Thiele, O. W.	GSFC	Suomi, V. E.	NAS 5-26345	5103
39	UNIV WISC-MADISON	Middleton, E. M.	GSFC	Scarpace, F. L.	NAS 5-26423	5104
39	UNIV WISC-MADISON	Vitale, J. A.	HQ-ET	Kiefer, R. W.	NGL 50-002-127	5118
39	VIRGINIA POLY INST	Gervin, J. C.	GSFC	Munday, J.	NAS 5-26199	4945
39	VIRGINIA POLY INST	Hypes, W. D.	LARC	Giles, H., Jr.	NAG 1-188	4908
39	VIRGINIA POLY INST	Tenney, D. R.	LARC	Shields, G.	NCC 1-10	4949
39	WASHINGTON ST UNIV	Wilson, D. E.	ARC	Krebs, L. T.	NCA 2-840001	5049
39	WASHINGTON UNIVERSTY	Weinstein, R. H.	HQ-ET	Eastwood, L. F.	NASW 3331	3423
39	WOODSHOLE OCEAN INST	McGoldrick, L. F.	HQ-EB	Spencer, D. W.	NAGW 241	3212

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39	XAVIER UNIV-LA	Espy, P. N.	MSFC	Ioup, J.	NSG 8050	2790
41	ARIZONA STATE UNIV	Claus, R. W.	LERC	So, R. M.	NAG 3-260	1099
41	ARIZONA STATE UNIV	Hippensteele, S. A.	LERC	Florschuetz, L. W.	NSG 3075	1118
41	BOSTON UNIVERSITY	Yates, E. C., Jr.	LARC	Freedman, M. I.	NAG 1-276	2973
41	BOSTON UNIVERSITY	Yates, E. C., Jr.	LARC	Morino, L.	NGR 22-004-030	2980
41	BOSTON UNIVERSITY	Carter, C. H.	HQ-LC	Tseng, K.	NGT 22-008-805	2986
41	BOSTON UNIVERSITY	Carter, C. H.	HQ-LB	Morino, L.	NGT 22-004-800	2981
41	BOSTON UNIVERSITY	Carter, C. H.	HQ-LB	Morino, L.	NGT 22-004-801	2982
41	BOSTON UNIVERSITY	Carter, C. H.	HQ-LB	Morino, L.	NGT 22-004-802	2983
41	BOSTON UNIVERSITY	Carter, C. H.	HQ-LB	Udelson, D.	NGT 22-008-803	2984
41	BOSTON UNIVERSITY	Carter, C. H.	HQ-LB	Tseng, R.	NGT 22-008-804	2985
41	BROWN UNIVERSITY	Townsend, J. C.	LARC	Sirovich, L.	NSG 1617	4326
41	BROWN UNIVERSITY	Carter, C. H.	HQ-LB	Doepfner, T. W., Jr.	NGT 40-002-800	4325
41	CALIF INST OF TECH	Peake, D. J.	ARC	Culick, F. E.	NAG 2-194	1238
41	CALIF INST OF TECH	Starns, J. H., Jr.	LARC	Knauss, W. G.	NSG 1483	1295
41	CALIF INST OF TECH	Tacina, R.	LERC	Marble, F. E.	NAG 3-70	1239
41	CAL POLY ST U-POMONA	Christianson, R. S.	ARC	Lord, P. A.	NAG 2-49	1308
41	CAL POLY ST U-S LUIS	Talbot, P. D.	ARC	Sandlin, D. R.	NAG 2-61	1309
41	CAL POLY ST U-S LUIS	Magee, J. P.	ARC	Grimes, J. E.	NAS 2-10364	1312
41	CAL POLY ST U-S LUIS	Koenig, D. G.	ARC	Hoffmann, J. A.	NSG 2391	1316
41	CAL POLY ST U-S LUIS	Myers, L. P.	DFRF	Epstein, A.	NAG 4-4	1310
41	CAL POLY ST U-S LUIS	Washington, H. P.	DFRF	Sandlin, D. R.	NCC 4-1	1315
41	CARNEGIE-MELLON UNIV	Kielb, R. E.	LERC	Griffin, J. H.	NAG 3-231	4174
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NAG 3-61	3895
41	CASE WESTERN RESERVE	Hingst, W. R.	LERC	Greber, I.	NAG 3-102	3901
41	CASE WESTERN RESERVE	Bishop, A. R.	LERC	Reshotko, E.	NAG 3-140	3904
41	CASE WESTERN RESERVE	Riddlebaugh, S. M.	LERC	Greber, I.	NAG 3-171	3907
41	CASE WESTERN RESERVE	Riddlebaugh, S. M.	LERC	Greber, I.	NAG 3-251	3921
41	CASE WESTERN RESERVE	Braun, W. H.	LERC	Reshotko, E.	NAG 3-270	3925
41	CASE WESTERN RESERVE	Sockol, P. M.	LERC	Reshotko, E.	NCC 3-4	3942
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Parke, F. I.	NSG 3207	3951
41	CITY COLLEGE OF N Y	Bushnell, D. M.	LARC	Johnson, J. A.	NAG 1-293	3578
41	CITY COLLEGE OF N Y	Boldman, D. R.	LERC	Raj, R.	NAG 3-122	3580
41	CLEMSON UNIV-CLEMSON	Doggett, R. V., Jr.	LARC	Rudisill, C. S.	NSG 1411	4343
41	CLEVELAND STATE UNIV	Johnson, G. M.	LERC	Chang, S. H.	NAG 3-339	3972
41	COLLEGE OF WM & MARY	Anywo, J. C.	LARC	Zang, T. A.	NAG 1-109	4735
41	COLORADO STATE UNIV	Sockol, P. M.	LERC	Sadeh, W. Z.	NSG 3127	2030
41	COLUMBIA UNIVERSITY	Harris, R. L., Sr.	LARC	Galanter, E.	NCC 1-5	3622
41	COLUMBIA UNIVERSITY	Mixson, J. S.	LARC	Vaicaitis, R.	NSG 1450	3627
41	CORNELL UNIVERSITY	Tauber, M. E.	ARC	Caughey, D. A.	NAG 2-13	3634
41	CORNELL UNIVERSITY	Tauber, M. E.	ARC	George, A. R.	NCC 2-138	3658
41	CORNELL UNIVERSITY	Tauber, M. E.	ARC	George, A. R.	NCC 2-173	3659
41	CORNELL UNIVERSITY	Chapman, G. T.	ARC	Lumley, J. L.	NSG 2382	3672
41	CORNELL UNIVERSITY	Farassat, F.	LARC	George, A. R.	NAG 1-107	3632
41	CORNELL UNIVERSITY	Johnson, G. M.	LERC	Caughey, D. A.	NAG 3-19	3639
41	DREXEL UNIVERSITY	Price, D. B.	LARC	Calise, A. J.	NAG 1-243	4183
41	DREXEL UNIVERSITY	Price, D. B.	LARC	Calise, A. J.	NSG 1496	4198
41	DREXEL UNIVERSITY	Humenik, F.	LERC	Cernansky, N. P.	NAG 3-1	4187
41	EMBRY-RIDDLE AERO U	Aaron, J. B.	GSFC	Gandelman, J.	NAS 6-3040	2239
41	EMBRY-RIDDLE AERO U	Garren, J. F., Jr.	LARC	Wells, D. C.	NCC 1-66	2240
41	FLORIDA STATE UNIV	Stone, J. R.	LERC	Tam, C. K.	NAG 3-182	2249
41	GEORGE WASHINGTON U	Chapman, G. T.	ARC	Hafez, M. M.	NAG 2-40	2178
41	GEORGE WASHINGTON U	Demarais, R. N.	LARC	Liebowitz, H.	NAG 1-13	2172
41	GEORGE WASHINGTON U	Jones, R. A.	LARC	Liebowitz, H.	NAG 1-136	2173
41	GEORGE WASHINGTON U	Gardner, J. E.	LARC	Liebowitz, H.	NAG 1-199	2177
41	GEORGE WASHINGTON U	Duberg, J. E.	LARC	Liebowitz, H.	NAS 1-14605	2181
41	GEORGE WASHINGTON U	Chestnutt, D.	LARC	Liebowitz, H.	NCC 1-14	2186
41	GEORGE WASHINGTON U	Foughner, J. T., Jr.	LARC	Liebowitz, H.	NCC 1-24	2188
41	GEORGE WASHINGTON U	Suit, W. T.	LARC	Liebowitz, H.	NCC 1-29	2189
41	GEORGE WASHINGTON U	Prior, E. J.	LARC	Liebowitz, H.	NCC 1-44	2192

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41	GEORGE WASHINGTON U	Hohl, F.	LARC	Liebowitz, H.	NCC 1-47	2193
41	GEORGE WASHINGTON U	McComb, H. G., Jr.	LARC	Liebowitz, H.	NGR 09-010-078	2194
41	GEORGE WASHINGTON U	Morgan, H. G.	LARC	Liebowitz, H.	NGR 09-010-085	2195
41	GEORGE WASHINGTON U	Harvey, W. D.	LARC	Liebowitz, H.	NSG 1585	2200
41	GEORGIA INST OF TECH	Levine, D. M.	GSFC	Wilson, B. J.	NAS 5-27257	2361
41	GEORGIA INST OF TECH	Scheiman, J.	LARC	McMahon, H. M.	NAG 1-40	2332
41	GEORGIA INST OF TECH	Lester, H. C.	LARC	Zinn, B. T.	NAG 1-133	2335
41	GEORGIA INST OF TECH	Berry, J. D.	LARC	Pierce, G. A.	NAS 1-16817	2352
41	GEORGIA INST OF TECH	Lee, B. L.	LARC	Pierce, G. A.	NSG 1592	2376
41	GEORGIA INST OF TECH	Saule, A. V.	LERC	Zinn, B. T.	NAG 3-67	2342
41	GEORGIA INST OF TECH	Phillips, B. R.	LERC	Zinn, B. T.	NAG 3-96	2344
41	GEORGIA INST OF TECH	Baumeister, K. J.	LERC	Zinn, B. T.	NSG 3036	2381
41	GEORGIA INST OF TECH	Sockol, P. M.	LERC	Johnston, W. A.	NSG 3260	2382
41	GEORGIA INST OF TECH	McFarland, E. R.	LERC	Wu, J.	NSG 3307	2383
41	HAMPTON INSTITUTE	Samms, K. H.	LARC	Wiggs, J. F.	NAG 1-69	4759
41	HAMPTON INSTITUTE	Jewel, J. W.	LARC	Williams, E.	NAS 1-16429	4762
41	HARVARD UNIVERSITY	Warmbrodt, W.	ARC	McKinney, P.	NCC 2-39	3016
41	HARVARD UNIVERSITY	Meyer, G.	ARC	Byrnes, C. I.	NSG 2265	3024
41	HARVEY MUDD COLLEGE	Clary, G. R.	ARC	Phillips, J. R.	NCA 2-283201	1334
41	HARVEY MUDD COLLEGE	Gupta, K. K.	DFRF	Tanenbaum, B. S.	NSG 4029	1335
41	HOWARD UNIVERSITY	Barrowman, J. S.	GSFC	Fan, D.	NAS 5-24242	2219
41	HOWARD UNIVERSITY	Taylor, L. W.	LARC	Choudhury, A. K.	NAG 1-130	2202
41	ILL INST OF TECH	Starnes, J. H., Jr.	LARC	Haftka, R. T.	NAG 1-5	2438
41	ILL INST OF TECH	Scheiman, J.	LARC	Tan-atichat, J.	NAG 1-74	2439
41	ILL INST OF TECH	Adelman, H. M.	LARC	Haftka, R. T.	NSG 1266	2441
41	ILL INST OF TECH	Hefner, J. N.	LARC	Nagib, H. M.	NSG 1591	2442
41	ILL INST OF TECH	Groeneweg, J. F.	LERC	Nagib, H. M.	NSG 3220	2443
41	IND U-PURDUE-INDAPLS	Sockol, P. M.	LERC	Bodonyi, R. J.	NSG 3183	2565
41	IND U-PURDUE-INDAPLS	Chima, R. U.	LERC	Ecer, A.	NSG 3294	2566
41	IOWA STATE UNIV	Olson, L. E.	ARC	James, W. D.	NAG 2-30	2620
41	IOWA STATE UNIV	Presley, L. L.	ARC	Cook, W. J.	NAG 2-106	2621
41	IOWA STATE UNIV	Murphy, J. D.	ARC	Pletcher, R. H.	NAG 2-152	2624
41	IOWA STATE UNIV	Corsiglia, V. R.	ARC	Vogel, J. M.	NCC 2-19	2634
41	IOWA STATE UNIV	Presley, L. L.	ARC	Cook, W. J.	NCC 2-200	2636
41	IOWA STATE UNIV	Rakich, J. U.	ARC	Tannehill, J. C.	NGR 16-002-038	2637
41	IOWA STATE UNIV	Malcolm, G. N.	ARC	James, W. D.	NSG 2091	2643
41	IOWA STATE UNIV	Salas, M. D.	LARC	Anderson, D. A.	NCC 1-17	2633
41	IOWA STATE UNIV	Graves, jr, R. A.	HQ-RT	Anderson, D. A.	NGT 16-002-801	2639
41	ISRAEL INST OF TECH	Schiff, L. B.	ARC	Katz, J.	NAGW 218	5159
41	ISRAEL INST OF TECH	Schiff, L. B.	ARC	Katz, J.	NAGW 218	5159
41	JOHNS HOPKINS UNIV	Rubesin, M. W.	ARC	Corrsin, S.	NSG 2303	2825
41	JOHNS HOPKINS UNIV	Carter, C. H.	HQ-LB	Davidson, A. F.	NGT 21-001-800	2821
41	LEHIGH UNIVERSITY	Batterton, P. G.	LERC	Rockwell, D. O.	NSG 3162	4215
41	MASS INST OF TECH	Piziali, R. A.	ARC	Miller, R. H.	NAG 2-47	3046
41	MASS INST OF TECH	Hicks, R. M.	ARC	Murman, E. M.	NAG 2-105	3051
41	MASS INST OF TECH	Chapman, G. C.	ARC	Murman, E. M.	NAG 2-115	3052
41	MASS INST OF TECH	Smith, C. A.	ARC	Hubbard, J. E.	NAG 2-182	3056
41	MASS INST OF TECH	Tobias, L.	ARC	Simpson, R. W.	NAG 2-190	3057
41	MASS INST OF TECH	Nagel, D. C.	ARC	Simpson, R. W.	NAS 2-10720	3104
41	MASS INST OF TECH	Johnson, W. R.	ARC	Widnall, S. E.	NSG 2142	3159
41	MASS INST OF TECH	Johnson, W. R.	ARC	Ham, N. D.	NSG 2266	3160
41	MASS INST OF TECH	Nelsen, E. D.	GSFC	Cunnold, D. M.	NAS 5-22915	3106
41	MASS INST OF TECH	Gloersen, P.	GSFC	Staelin, D. H.	NAS 5-22929	3107
41	MASS INST OF TECH	Bland, S. R.	LARC	Harris, W. L.	NAG 1-60	3035
41	MASS INST OF TECH	Hanks, B. R.	LARC	Vandervelde, W. E.	NAG 1-126	3039
41	MASS INST OF TECH	Kelley, J. R.	LARC	Athans, M.	NAG 1-140	3040
41	MASS INST OF TECH	Kilgore, R. A.	LARC	Covert, E. E.	NAG 1-206	3042
41	MASS INST OF TECH	Anderson, G. Y.	LARC	Murman, E. M.	NAG 1-229	3043
41	MASS INST OF TECH	Hubbard, H. H.	LARC	Ingard, K. V.	NAS 1-15154	3100
41	MASS INST OF TECH	Maddalon, D. V.	LARC	Taneja, N. K.	NAS 1-15268	3101

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41	MASS INST OF TECH	Harris, R. L.	LARC	Hsieh, K. C.	NCC 1-23	3130
41	MASS INST OF TECH	Dwoyer, D. L.	LARC	Abarbanel, S. S.	NCC 1-45	3131
41	MASS INST OF TECH	Howell, W. E.	LARC	Simpson, R. W.	NGL 22-009-640	3140
41	MASS INST OF TECH	Boyden, R. P.	LARC	Haldeman, C. W.	NSG 1356	3153
41	MASS INST OF TECH	Boyden, R. P.	LARC	Covert, E. E.	NSG 1502	3154
41	MASS INST OF TECH	Chima, R. V.	LERC	Thompkins, W. T.	NAG 3-9	3058
41	MASS INST OF TECH	Schock, H. J.	LERC	Heywood, J. B.	NAG 3-82	3060
41	MASS INST OF TECH	Kielb, R. E.	LERC	Crawley, E. F.	NAG 3-200	3063
41	MASS INST OF TECH	Kielb, R. E.	LERC	Dugunkji, J.	NAG 3-214	3064
41	MASS INST OF TECH	Rohde, J. E.	LERC	Epstein, A.	NAG 3-334	3070
41	MASS INST OF TECH	Gorrell, W. T.	LERC	Covert, E. E.	NGL 22-009-383	3137
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Crawley, E. F.	NSG 3079	3165
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Greitzer, E. M.	NSG 3208	3167
41	MASS INST OF TECH	Janetzke, D. C.	LERC	Dugundji, J.	NSG 3303	3170
41	MASS INST OF TECH	Graves, R. A.	HQ-RT	Murman, E. M.	NGT 22-009-901	3150
41	MICHIGAN STATE UNIV	Rubesin, M. W.	ARC	Foss, J. F.	NAG 2-86	3224
41	MICHIGAN STATE UNIV	Hefner, J. N.	LARC	Falco, R. E.	NAG 1-221	3222
41	MICHIGAN STATE UNIV	Yu, J. C.	LARC	Foss, J. F.	NAG 1-287	3223
41	MISSISSIPPI STATE U	Horstman, C. C.	ARC	Whitefield, D. L.	NCC 2-184	3374
41	MISSISSIPPI STATE U	Holmes, B. J.	LARC	Bull, G.	NAG 1-3	3363
41	MISSISSIPPI STATE U	Thames, F. C.	LARC	Whitfield, D. L.	NAG 1-226	3364
41	MISSISSIPPI STATE U	Thames, F. C.	LARC	Thompson, J. F.	NGR 25-001-055	3376
41	MISSISSIPPI STATE U	Liu, C. H.	LARC	Bennett, A. G.	NSG 1623	3380
41	MONTANA STATE UNIV	Horstman, C. C.	ARC	Demetriades, A.	NAG 2-37	3435
41	NEW YORK UNIVERSITY	Hicks, R. M.	ARC	Garabedian, P. R.	NGR 33-016-201	3704
41	NEW YORK UNIVERSITY	Maestrello, L.	LARC	Bayliss, A.	NAG 1-155	3692
41	NEW YORK UNIVERSITY	Liu, C. H.	LARC	Ting, L.	NCC 1-58	3702
41	NEW YORK UNIVERSITY	Graves, R. A.	HQ-RT	Garabedian, P. R.	NGT 33-016-800	3705
41	NO CAROLINA STATE U	Harris, J. E.	LARC	Hassan, H. A.	NAG 1-244	3858
41	NO CAROLINA STATE U	South, J. C., Jr.	LARC	Hassan, H. A.	NCC 1-22	3869
41	NO CAROLINA STATE U	Wurster, K. E.	LARC	Dejarnette, F. R.	NCC 1-35	3870
41	NO CAROLINA STATE U	Schoonover, W. E., Jr.	LARC	Dejarnette, F. R.	NCC 1-46	3871
41	NO CAROLINA STATE U	Holbrook, G. T.	LARC	Smetana, F. O.	NSG 1584	3878
41	NO CAROLINA STATE U	Hwang, D.	LERC	Boles, M. A.	NAG 3-89	3860
41	NO CAROLINA STATE U	Stone, J. R.	LERC	Nagel, R. T.	NAG 3-189	3861
41	NO CAROLINA STATE U	Burstadt, P. L.	LERC	Boles, M. A.	NAG 3-229	3862
41	NO CAROLINA STATE U	Hwang, D. P.	LERC	Boles, M.	NAG 3-343	3864
41	NORTHWESTERN UNIV	Faye, A. E.	ARC	Spencer, F. A.	NSG 2328	2462
41	OHIO STATE UNIV	Hicks, R. M.	ARC	Gregorek, G. M.	NAG 2-32	3993
41	OHIO STATE UNIV	Stroub, R. H.	ARC	Velkoff, H. R.	NCA 2-565001	4015
41	OHIO STATE UNIV	Holst, T. L.	ARC	Nakamura, S.	NCA 2-565101	4016
41	OHIO STATE UNIV	Stroub, R. H.	ARC	Velkoff, H. R.	NCA 2-565102	4017
41	OHIO STATE UNIV	Holst, T. L.	ARC	Nakamura, S.	NCA 2-565901	4018
41	OHIO STATE UNIV	Marvin, J. G.	ARC	Petrie, S. L.	NSG 2298	4028
41	OHIO STATE UNIV	Bergeron, H. P.	LARC	Chapman, G. C.	NAG 1-238	3992
41	OHIO STATE UNIV	McGhee, R. J.	LARC	Gregorek, G. M.	NAS 1-14406	4008
41	OHIO STATE UNIV	Greene, G. C.	LARC	Gregorek, G. M.	NAS 1-15680	4009
41	OHIO STATE UNIV	Bergeron, H. P.	LARC	Weislogel, G. S.	NAS 1-15969	4010
41	OHIO STATE UNIV	Holmes, B. J.	LARC	Gregorek, G. M.	NAS 1-16388	4011
41	OHIO STATE UNIV	Everhart, J. L.	LARC	Burggraf, O. R.	NSG 1622	4023
41	OHIO STATE UNIV	Shaw, R. J.	LERC	Gregorek, G. M.	NAG 3-28	3999
41	OHIO STATE UNIV	Shaw, R. J.	LERC	Lee, J. D.	NAG 3-109	4001
41	OHIO STATE UNIV	Bober, L. J.	LERC	Lee, J. D.	NAG 3-118	4002
41	OHIO STATE UNIV	Mitchell, G. A.	LERC	Gregorek, G. M.	NSG 3247	4031
41	OHIO UNIVERSITY	Adams, J. J.	LARC	McFarland, R. H.	NAG 1-124	4038
41	OKLAHOMA STATE UNIV	Steinle, F. W., Jr.	ARC	Reed, T. D.	NAG 2-76	4117
41	OKLAHOMA STATE UNIV	Miller, S. A.	ARC	Wiggins, K. E.	NAS 2-10467	4120
41	OKLAHOMA STATE UNIV	Seiner, J. M.	LARC	McLaughlin, D. K.	NAG 1-159	4116
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Grosch, C. E.	NAG 1-96	4778
41	OLD DOMINION UNIV	Moss, J. N.	LARC	Tiwari, S. N.	NAG 1-120	4781

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41	OLD DOMINION UNIV	Anyiwo, J. C.	LARC	Ash, R. L.	NAG 1-121	4782
41	OLD DOMINION UNIV	Harvey, W. D.	LARC	Goglia, G. L.	NAG 1-228	4792
41	OLD DOMINION UNIV	Harvey, W. D.	LARC	Goglia, G. L.	NAG 1-294	4796
41	OLD DOMINION UNIV	Erickson, W. D.	LARC	Unavailable	NAS 1-15648	4798
41	OLD DOMINION UNIV	Drummond, J. P.	LARC	Tiwari, S. N.	NAS 1-15930	4799
41	OLD DOMINION UNIV	Prior, E. J.	LARC	Unavailable	NAS 1-17099	4802
41	OLD DOMINION UNIV	Spady, A. A., Jr.	LARC	Kirby, R. H.	NCC 1-57	4811
41	OLD DOMINION UNIV	Davis, R. C.	LARC	Prabhakaran, R.	NCC 1-60	4812
41	OLD DOMINION UNIV	Liu, C. H.	LARC	Tiwari, S. N.	NCC 1-65	4813
41	OLD DOMINION UNIV	Smith, R. E.	LARC	Tiwari, S. N.	NCC 1-68	4814
41	OLD DOMINION UNIV	Tolson, R. H.	LARC	Roberts, A. S.	NGR 47-003-052	4815
41	OLD DOMINION UNIV	Dixon, S. C.	LARC	Thornton, E. A.	NSG 1167	4819
41	OLD DOMINION UNIV	Frink, N. T.	LARC	Kuhlman, J. M.	NSG 1357	4823
41	OLD DOMINION UNIV	Creedon, J. F.	LARC	Tcheng, P.	NSG 1480	4826
41	OLD DOMINION UNIV	Kilgore, R. A.	LARC	Goglia, G. L.	NSG 1503	4827
41	OLD DOMINION UNIV	Dwoyer, D. L.	LARC	Cooke, C. H.	NSG 1517	4828
41	OLD DOMINION UNIV	Yates, E. C., Jr.	LARC	Kandil, O. A.	NSG 1560	4829
41	OLD DOMINION UNIV	Luckring, J. M.	LARC	Reddy, C. S.	NSG 1561	4830
41	OLD DOMINION UNIV	Margason, R. J.	LARC	Barna, P. S.	NSG 1563	4831
41	OLD DOMINION UNIV	Bushnell, D. M.	LARC	Grosch, C. E.	NSG 1618	4833
41	OLD DOMINION UNIV	Hefner, J. N.	LARC	Ash, R. L.	NSG 1634	4834
41	OLD DOMINION UNIV	Harvey, W. D.	LARC	Goglia, G. I.	NSG 1645	4835
41	OLD DOMINION UNIV	Jones, R. L.	LARC	Mielke, R. R.	NSG 1650	4837
41	PENN STATE U-UNIV PK	Norum, T. D.	LARC	Daniel, O. H.	NAG 1-4	4221
41	PENN STATE U-UNIV PK	Chambers, J. R.	LARC	McCormick, B. W.	NAG 1-73	4222
41	PENN STATE U-UNIV PK	Stephens, D. G.	LARC	Maynard, J. D.	NAG 1-216	4223
41	PENN STATE U-UNIV PK	Gatski, T. B.	LARC	Morris, P. J.	NSG 1580	4270
41	PENN STATE U-UNIV PK	Shaw, L. M.	LERC	Lakshminarayana, B.	NSG 3012	4271
41	PENN STATE U-UNIV PK	Sockol, P. M.	LERC	Lakshminarayana, B.	NSG 3212	4273
41	PENN STATE U-UNIV PK	Sanger, N. L.	LERC	Deutsch, S.	NSG 3264	4274
41	PENN STATE U-UNIV PK	Englert, G. W.	LERC	Morris, P. J.	NSG 3265	4275
41	PENN STATE U-UNIV PK	Sockol, P. M.	LERC	Lakshminarayana, B.	NSG 3266	4276
41	PENN STATE U-UNIV PK	Mehmed, O.	LERC	McCormick, B. W.	NSG 3304	4278
41	PENN STATE U-UNIV PK	Graves, R. A., Jr.	HQ-RT	Lakshminarayana, B.	NGT 39-009-802	4266
41	POLY INST OF NY	Smith, F. H.	ARC	Ison, M. P.	NCC 2-87	3714
41	POLY INST OF NY	Yu, Y. H.	ARC	Isom, M.	NCC 2-172	3715
41	POLY INST OF NY	South, J. C., Jr.	LARC	Grossman, B.	NAG 1-183	3711
41	POLY INST OF NY	Salas, M. D.	LARC	Moretti, G.	NSG 1248	3717
41	PRINCETON UNIVERSITY	Hicks, R. M.	ARC	Jameson, A.	NAG 2-96	3490
41	PRINCETON UNIVERSITY	Talbot, P. D.	ARC	Curtiss, H. C.	NAG 2-98	3491
41	PRINCETON UNIVERSITY	Horstman, C. C.	ARC	Settles, G. S.	NAG 2-109	3492
41	PRINCETON UNIVERSITY	Cross, J. L.	ARC	Miles, R. B.	NCC 2-94	3518
41	PRINCETON UNIVERSITY	Chyu, W. J.	ARC	Dowell, E. H.	NSG 2194	3525
41	PRINCETON UNIVERSITY	Hefner, J. N.	LARC	Curtiss, H. C.	NAG 1-108	3487
41	PRINCETON UNIVERSITY	South, J. C.	LARC	Jameson, A.	NAG 1-186	3489
41	PRINCETON UNIVERSITY	Bryant, W. H.	LARC	Stengel, R. F.	NAS 1-15758	3508
41	PRINCETON UNIVERSITY	Abbott, T. S.	LARC	Stengel, R. F.	NAS 1-15764	3509
41	PRINCETON UNIVERSITY	Eide, D. G.	LARC	Miles, R. B.	NCC 1-64	3517
41	PRINCETON UNIVERSITY	Howell, W. E.	LARC	Stengel, R. F.	NGL 31-001-252	3520
41	PRINCETON UNIVERSITY	Schy, A. A.	LARC	Stengel, R. F.	NSG 1587	3523
41	PRINCETON UNIVERSITY	Blanchard, R. C.	LARC	Bienkowski, G. K.	NSG 1630	3524
41	PRINCETON UNIVERSITY	Szaniszlo, A. J.	LERC	Bracco, F. V.	NAG 3-8	3493
41	PRINCETON UNIVERSITY	Rice, W.	LERC	Sweet, L. M.	NAG 3-110	3494
41	PRINCETON UNIVERSITY	Brown, G. V.	LERC	Bendiksen, O. O.	NAG 3-308	3497
41	PRINCETON UNIVERSITY	Braun, W. H.	LERC	Dowell, E. H.	NSG 3292	3528
41	PRINCETON UNIVERSITY	Hicks, G.	HQ-RT	Bogdonoff, S.	NAGW 240	3506
41	PURDUE UNIVERSITY	Goorjian, P.	ARC	Yang, H. T.	NCA 2-605201	2597
41	PURDUE UNIVERSITY	Cozzolongo, J. V.	ARC	Anderson, D. C.	NCC 2-146	2599
41	PURDUE UNIVERSITY	Franklin, J. A.	ARC	Schmidt, D. K.	NCC 2-192	2600
41	PURDUE UNIVERSITY	Carmichael, R. L.	ARC	Anderson, D. C.	NSG 2192	2603

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41	PURDUE UNIVERSITY	Berry, D. T.	DFRF	Schmidt, D. K.	NAG 4-1	2581
41	PURDUE UNIVERSITY	Mixson, J. S.	LARC	Crocker, M. J.	NAG 1-58	2587
41	PURDUE UNIVERSITY	Swanson, R. C.	LARC	McCarthy, D. R.	NAG 1-116	2568
41	PURDUE UNIVERSITY	Newsom, J. R.	LARC	Weisshaar, T. A.	NAG 1-157	2569
41	PURDUE UNIVERSITY	Elliott, J. R.	LARC	Schmidt, D. K.	NAG 1-254	2572
41	PURDUE UNIVERSITY	Swanson, R. C.	LARC	McCarthy, D. R.	NSG 1635	2602
41	PURDUE UNIVERSITY	Lehtinen, B.	LERC	Laininger, G. G.	NAG 3-17	2573
41	PURDUE UNIVERSITY	Steinke, R. J.	LERC	Murthy, S. N.	NAG 3-62	2575
41	PURDUE UNIVERSITY	Steinke, R. J.	LERC	Murthy, S. N.	NAG 3-204	2576
41	PURDUE UNIVERSITY	Chamis, C. C.	LERC	Sun, C. T.	NAG 3-211	2577
41	PURDUE UNIVERSITY	Tacina, R. R.	LERC	Lefebvre, A. H.	NAG 3-226	2578
41	PURDUE UNIVERSITY	Katsanis, T.	LERC	Ragsdell, K. M.	NSG 3105	2606
41	PURDUE UNIVERSITY	Mitchell, G. A.	LERC	Sullivan, J. P.	NSG 3135	2607
41	PURDUE UNIVERSITY	Chamis, C. C.	LERC	Sun, C. T.	NSG 3185	2608
41	PURDUE UNIVERSITY	Bosque, M. A.	LERC	Lefebvre, A. H.	NSG 3213	2609
41	PURDUE UNIVERSITY	Boldman, D. R.	LERC	Fleeter, S.	NSG 3285	2611
41	RENSSELAER POLY-NY	Harris, C. D.	LARC	Nagamatsu, H. T.	NSG 1624	3748
41	RENSSELAER POLY-NY	Thompson, R. L.	LERC	Krempf, E.	NAG 3-262	3737
41	RENSSELAER POLY-NY	Vanfossen, G. J., Jr.	LERC	Mayle, R. E.	NSG 3282	3751
41	SAN JOSE STATE UNIV	Acree, C. W.	ARC	Agarwal, R. B.	NCA 2-675102	1367
41	SAN JOSE STATE UNIV	Galloway, T. L.	ARC	Wang, J. C.	NCA 2-675201	1369
41	SAN JOSE STATE UNIV	Bach, R. E., Jr.	ARC	Wang, J. C.	NCC 2-123	1380
41	SAN JOSE STATE UNIV	Bach, R. E., Jr.	ARC	Moriarty, G.	NCC 2-161	1397
41	SAN JOSE STATE UNIV	Crouse, J. E.	LERC	Roberts, W. B.	NAG 3-196	1359
41	STANFORD UNIVERSITY	Chapman, G. T.	ARC	Cantrell, B.	NAG 2-21	1415
41	STANFORD UNIVERSITY	Peterson, V. L.	ARC	Reynolds, W. C.	NAG 2-29	1416
41	STANFORD UNIVERSITY	Johnson, D. A.	ARC	Kline, S. J.	NAG 2-42	1418
41	STANFORD UNIVERSITY	Yu, Y. H.	ARC	Baganoff, D.	NAG 2-45	1420
41	STANFORD UNIVERSITY	Rubesin, M. W.	ARC	Cantwell, B.	NAG 2-79	1422
41	STANFORD UNIVERSITY	Aoyagi, K.	ARC	Karamcheti, K.	NAG 2-111	1424
41	STANFORD UNIVERSITY	Soderman, P. T.	ARC	Karamcheti, K.	NAG 2-127	1426
41	STANFORD UNIVERSITY	Morse, H. A.	ARC	Debra, D.	NAG 2-156	1428
41	STANFORD UNIVERSITY	Conlon, J. A.	ARC	Karamcheti, K.	NAG 2-173	1431
41	STANFORD UNIVERSITY	Corsiglia, V. R.	ARC	Shevell, R. S.	NAG 2-187	1432
41	STANFORD UNIVERSITY	Erzberger, H.	ARC	Bryson, A. E.	NAG 2-191	1433
41	STANFORD UNIVERSITY	Lomax, H.	ARC	Steger, J. L.	NCA 2-745005	1481
41	STANFORD UNIVERSITY	Leonard, A.	ARC	Baganoff, D.	NCA 2-745101	1484
41	STANFORD UNIVERSITY	Schiff, L. B.	ARC	Steger, J. L.	NCA 2-745204	1494
41	STANFORD UNIVERSITY	Lomax, H.	ARC	Steger, J. L.	NCA 2-745205	1495
41	STANFORD UNIVERSITY	Johnson, W. R.	ARC	Karamcheti, K.	NCC 2-13	1503
41	STANFORD UNIVERSITY	Carr, L. W.	ARC	Reynolds, W. G.	NCC 2-21	1505
41	STANFORD UNIVERSITY	Deckert, W. H.	ARC	Karamcheti, K.	NCC 2-55	1513
41	STANFORD UNIVERSITY	Marvin, J. G.	ARC	Karamcheti, K.	NCC 2-59	1514
41	STANFORD UNIVERSITY	Olson, L. E.	ARC	Karamcheti, K.	NCC 2-62	1515
41	STANFORD UNIVERSITY	Koenig, D. G.	ARC	Karamcheti, K.	NCC 2-74	1517
41	STANFORD UNIVERSITY	Atencio, A.	ARC	Karamcheti, K.	NCC 2-75	1518
41	STANFORD UNIVERSITY	Soderman, P. T.	ARC	Karamcheti, K.	NCC 2-76	1519
41	STANFORD UNIVERSITY	Schairer, E. T.	ARC	Karamcheti, K.	NCC 2-77	1520
41	STANFORD UNIVERSITY	McKenzie, R. L.	ARC	Bershader, D.	NCC 2-82	1521
41	STANFORD UNIVERSITY	Davis, S. S.	ARC	Karamcheti, K.	NCC 2-89	1522
41	STANFORD UNIVERSITY	Morse, H. A.	ARC	Steger, T.	NCC 2-97	1523
41	STANFORD UNIVERSITY	Franklin, J. A.	ARC	Bryson, A. E.	NCC 2-106	1525
41	STANFORD UNIVERSITY	Davis, S.	ARC	Karamchetti, K.	NCC 2-149	1533
41	STANFORD UNIVERSITY	Lampkin, B. A.	ARC	Karamcheti, K.	NCC 2-150	1534
41	STANFORD UNIVERSITY	Yu, Y. H.	ARC	Hesselink, P. I.	NCC 2-188	1536
41	STANFORD UNIVERSITY	Aoyagi, K.	ARC	Karamcheti, K.	NCC 2-198	1537
41	STANFORD UNIVERSITY	Soderman, P. T.	ARC	Karamcheti, K.	NCC 2-212	1538
41	STANFORD UNIVERSITY	Ciffone, D. L.	ARC	Ashley, H.	NSG 2359	1559
41	STANFORD UNIVERSITY	Franklin, J. A.	ARC	Debra, D. B.	NSG 2400	1580
41	STANFORD UNIVERSITY	Gilyard, G. B.	DFRF	Debra, D. B.	NSG 4002	1581

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41	STANFORD UNIVERSITY	Edwards, J. W.	LARC	Debra, D. B.	NAG 1-105	1409
41	STANFORD UNIVERSITY	Jernell, L. S.	LARC	Shevell, R. S.	NAG 1-202	1411
41	STANFORD UNIVERSITY	Rudy, D. H.	LARC	Steger, J. L.	NAG 1-269	1414
41	STANFORD UNIVERSITY	Doggett, R. V., Jr.	LARC	Ashley, H.	NGL 05-020-243	1543
41	STANFORD UNIVERSITY	Johnson, G. M.	LERC	Steger, J. L.	NAG 3-275	1439
41	STANFORD UNIVERSITY	Bosque, M. A.	LERC	Hanson, R. K.	NAG 3-285	1440
41	STANFORD UNIVERSITY	Chamis, C. C.	LERC	Hughes, T. J.	NAG 3-319	1441
41	STANFORD UNIVERSITY	Chappell, C. R.	MSFC	Banks, P. M.	NAS 8-34430	1475
41	STANFORD UNIVERSITY	Carter, C. H.	HQ-LB	Steger, J. L.	NGT 05-020-802	1555
41	STANFORD UNIVERSITY	Graves, R. A., Jr.	HQ-RT	Chapman, D. R.	NGT 05-020-801	1554
41	ST U NY COL-ONEONTA	Allison, D. O.	LARC	Ram, R. B.	NAG 1-131	3822
41	SYRACUSE UNIVERSITY	Seiner, J. M.	LARC	Dosanjh, D.	NAG 1-129	3825
41	SYRACUSE UNIVERSITY	Stone, J. R.	MSFC	Dosanjh, D. S.	NAG 3-202	3826
41	TEXAS A&M UNIVERSITY	Enomoto, F. Y.	ARC	Miley, S. J.	NAG 2-25	4473
41	TEXAS A&M UNIVERSITY	Gambucci, B. J.	ARC	Brusse, J. C.	NAS 2-10272	4484
41	TEXAS A&M UNIVERSITY	Shockey, G. A.	ARC	Hall, G. F.	NCA 2-773101	4517
41	TEXAS A&M UNIVERSITY	Shockey, G. A.	ARC	Ward, D. T.	NCA 2-773201	4518
41	TEXAS A&M UNIVERSITY	Corsiglia, V. R.	ARC	Chevalier, H.	NCC 2-78	4519
41	TEXAS A&M UNIVERSITY	Andre, W. L.	ARC	Phillips, D. T.	NSG 2226	4529
41	TEXAS A&M UNIVERSITY	Szajna, E. F.	GSFC	El-sayed, S. Z.	NAS 5-22966	4485
41	TEXAS A&M UNIVERSITY	Needleman, H. C.	GSFC	Carlson, L. A.	NAS 6-3072	4489
41	TEXAS A&M UNIVERSITY	Yu, J. C.	LARC	Gerhold, C. H.	NAG 1-11	4489
41	TEXAS A&M UNIVERSITY	Dow, M. B.	LARC	Horn, W. J.	NAG 1-184	4471
41	TEXAS A&M UNIVERSITY	Jernell, L. S.	LARC	Miley, S. J.	NAG 1-214	4472
41	TEXAS A&M UNIVERSITY	Everhart, J. L.	LARC	Carlson, L. A.	NSG 1174	4526
41	TEXAS A&M UNIVERSITY	Chambers, J. R.	LARC	Chevalier, H. L.	NSG 1407	4527
41	TEXAS A&M UNIVERSITY	Shaw, R. J.	LERC	Korkan, K. D.	NAG 3-242	4478
41	TEXAS A&M UNIVERSITY	Hughes, C. E.	LERC	Korkan, K. D.	NAG 3-272	4479
41	TUSKEGEE INSTITUTE	Knox, C. E.	LARC	Hargrove, A.	NAG 1-72	1017
41	TUSKEGEE INSTITUTE	Civinskas, K. C.	LERC	Jenkins, R. M.	NSG 3295	1026
41	UNIV OF AKRON	Chamis, C. C.	LERC	Fertis, D. G.	NAG 3-50	4040
41	UNIV OF AKRON	Chamis, C. C.	LERC	Chang, T. Y.	NAG 3-307	4045
41	UNIV OF AKRON	Chamis, C. C.	LERC	Adams, M. L.	NSG 3283	4053
41	UNIV OF ARIZONA	Hefner, J. N.	LARC	Kinney, R. B.	NAG 1-141	1125
41	UNIV OF ARIZONA	Chamis, C. C.	LERC	Gallagher, R. H.	NAG 3-45	1135
41	UNIV OF ARIZONA	Brinton, H. C.	HQ-EL	Tomasko, M.	NAGW 55	1148
41	UNIV OF ARIZONA	Graves, R. A.	HQ-RT	Fung, K. Y.	NGT 03-002-800	1202
41	UNIV ARKANSAS-FAYETV	Ragent, B.	ARC	Ballard, G. S.	NGL 04-001-007	1234
41	UNIV CALIF-BERKELEY	Forrest, R. D.	ARC	Kanafani, A.	NAG 2-19	1569
41	UNIV CALIF-BERKELEY	Marvin, J. G.	ARC	Holt, M.	NCC 2-179	1642
41	UNIV CALIF-BERKELEY	Lee, G.	ARC	Holt, M.	NGR 05-003-451	1652
41	UNIV CALIF-BERKELEY	Marek, C. J.	LERC	Oppenheim, A. K.	NAG 3-131	1574
41	UNIV CALIF-BERKELEY	Marek, C. J.	LERC	Oppenheim, A. K.	NSG 3227	1662
41	UNIV CALIF-L ANGELES	Miura, H.	ARC	Friedmann, P. P.	NAG 2-116	1704
41	UNIV CALIF-L ANGELES	Soderman, P.	ARC	Meecham, W. C.	NSG 2290	1759
41	UNIV CALIF-L ANGELES	Iloff, K. W.	DFRF	Balakrishnan, A. V.	NSG 4015	1761
41	UNIV CALIF-L ANGELES	Rudy, D. H.	LARC	Osher, S. J.	NAG 1-270	1701
41	UNIV CALIF-L ANGELES	Whitlow, W.	LARC	Osher, S. J.	NAG 1-273	1702
41	UNIV CALIF-L ANGELES	Young, W. H.	LARC	Friedmann, P.	NSG 1578	1758
41	UNIV CALIF-SAN DIEGO	Marek, C. J.	LERC	Libby, P. A.	NSG 3219	1839
41	UNIV OF CINCINNATI	Hodges, D. H.	ARC	Crespo Da Silva, M. R.	NAG 2-38	4056
41	UNIV OF CINCINNATI	Erzberger, H.	ARC	Slater, G. L.	NAG 2-175	4057
41	UNIV OF CINCINNATI	Rakich, J. V.	ARC	Davis, R. T.	NCA 2-130101	4065
41	UNIV OF CINCINNATI	Erzberger, H.	ARC	Slater, G. L.	NCA 2-130801	4066
41	UNIV OF CINCINNATI	Rakich, J. V.	ARC	Davis, R. T.	NCA 2-130901	4067
41	UNIV OF CINCINNATI	Swanson, R. C.	LARC	Rubin, S. S.	NAG 1-8	4054
41	UNIV OF CINCINNATI	McLallin, K. L.	LERC	Tabakoff, W.	NAG 3-26	4058
41	UNIV OF CINCINNATI	Katsanis, T.	LERC	Hamed, A. A.	NAG 3-52	4059
41	UNIV OF CINCINNATI	Katsanis, T.	LERC	Ghia, K. N.	NAG 3-194	4062
41	UNIV OF CINCINNATI	Kao, H. C.	LERC	Ghia, K. N.	NSG 3267	4076

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41	UNIV OF CINCINNATI	Johnston, G. D.	MSFC	Brown, D. L.	NAS 8-34503	4064
41	UNIV OF CINCINNATI	Graves, R. A., Jr.	HQ-RT	Rubin, S. G.	NGT 36-004-800	4068
41	UNIV COLORADO-BOLDR	Holst, T. L.	ARC	Chow, C. Y.	NCA 2-170202	2086
41	UNIV COLORADO-BOLDR	Stainback, P. C.	LARC	Uberoi, M. S.	NAG 1-59	2037
41	UNIV OF CONNECTICUT	Warmbrodt, W.	ARC	Bar-shalom, Y.	NAG 2-72	2129
41	UNIV OF CONNECTICUT	Olsen, W.	LERC	Bowley, W. W.	NAG 3-64	2130
41	UNIV OF DAYTON	Carr, R. E.	GSFC	Luers, J. K.	NSG 6026	4089
41	UNIV OF DAYTON	Shaw, R. J.	LERC	Luers, J. K.	NAG 3-65	4080
41	UNIV OF DELAWARE	Dow, M. B.	LARC	Pipes, R. B.	NAG 1-281	2153
41	UNIV OF DELAWARE	Farrell, C. A.	LERC	Seidel, B. S.	NAG 3-121	2154
41	UNIV OF FLORIDA	Malcolm, G. N.	ARC	Clarkson, M. H.	NCC 2-23	2290
41	UNIV OF FLORIDA	Koenig, D. G.	ARC	Fearn, R. F.	NCC 2-133	2291
41	UNIV OF FLORIDA	Aoyagi, K.	ARC	Fearn, R. L.	NSG 2288	2298
41	UNIV OF FLORIDA	Wilkinson, S. P.	LARC	Clarkson, M. H.	NAG 1-104	2267
41	UNIV OF FLORIDA	Margason, R. J.	LARC	Fearn, R. L.	NAG 1-245	2271
41	UNIV OF FLORIDA	Carter, C. H.	HQ-LB	Clarkson, M.	NGT 10-005-800	2294
41	UNIV OF FLORIDA	Carter, C. H.	HQ-LB	Fearn, R. L.	NGT 10-005-801	2295
41	UNIV OF FLORIDA	Carter, C. H.	HQ-LB	Fearn, R. L.	NGT 10-005-803	2297
41	UNIV OF FLORIDA	Carter, C. H.	LARC	Nadkarni, A. A.	NSG 1475	4556
41	UNIV HOUSTON-HOUSTON	Maestrello, L.	MSFC	Hussain, A. K.	NAG 3-198	4539
41	UNIV HOUSTON-HOUSTON	Stone, J. R.	LARC	Ormsbee, A. I.	NAG 1-76	2510
41	UNIV ILLINOIS-URBANA	Somers, D. M.	LARC	Chien, R. T.	NAG 1-90	2511
41	UNIV ILLINOIS-URBANA	Hankins, W. W.	LARC	Chien, R. T.	NAG 3-60	2518
41	UNIV ILLINOIS-URBANA	Baker, C. E.	LERC	Strehlow, R. A.	NAG 2-110	2647
41	UNIV OF IOWA	Marvin, J. G.	ARC	Ramaprian, B. R.	NAG 2-110	2647
41	UNIV OF IOWA	Skillman, D.	GSFC	Frank, L. A.	NAS 5-25689	2665
41	UNIV OF IOWA	Skillman, D.	GSFC	Shawhan, S.	NAS 5-25690	2666
41	UNIV OF IOWA	Giles, G. L.	LARC	Haug, E. J.	NAG 1-215	2646
41	UNIV OF IOWA	Johnson, G. M.	LERC	Chen, C. J.	NSG 3305	2680
41	UNIV OF KANSAS	Black, J. M.	ARC	Roskam, R. J.	NAG 4-5	2699
41	UNIV OF KANSAS	Stroub, R. H.	ARC	Fortin, P.	NCC 2-92	2723
41	UNIV OF KANSAS	Cozzolongo, J. V.	ARC	Schweikhard, W. D.	NCC 2-107	2724
41	UNIV OF KANSAS	Harper, M.	ARC	Schweikhard, W. G.	NCC 2-110	2725
41	UNIV OF KANSAS	Stroub, R. H.	ARC	Fortin, P. E.	NCC 2-112	2726
41	UNIV OF KANSAS	Stroub, R. H.	ARC	Kumagi, H.	NCC 2-175	2727
41	UNIV OF KANSAS	Jenkins, J. M.	ARC	Smith, H.	NSG 4008	2735
41	UNIV OF KANSAS	Ayers, T. G.	DFRF	Schweikhard, W. G.	NCC 4-3	2728
41	UNIV OF KANSAS	Wilson, E. J.	DFRF	Roskam, J.	NSG 4019	2736
41	UNIV OF KANSAS	Burcham, F. W.	DFRF	Schweikhard, W. G.	NSG 4028	2738
41	UNIV OF KANSAS	Frink, N. T.	LARC	Lan, C. E.	NAG 1-75	2686
41	UNIV OF KANSAS	Gilbert, W. P.	LARC	Lan, C. E.	NAG 1-134	2688
41	UNIV OF KANSAS	Jernell, L. S.	LARC	Roskam, J.	NAG 1-205	2690
41	UNIV OF KANSAS	Williams, L. J.	LARC	Downing, D. R.	NAG 1-282	2691
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Greeley, R.	NAS 1-16363	2711
41	UNIV OF KANSAS	Stephens, D. G.	LARC	Roskam, J.	NCC 1-6	2720
41	UNIV OF KANSAS	Campbell, J. F.	LARC	Lan, C. E.	NCC 1-18	2721
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Lan, C. E.	NSG 1629	2732
41	UNIV OF KANSAS	Holmes, B. J.	LARC	Roskam, J.	NSG 1633	2733
41	UNIV OF KANSAS	Neumann, H. E.	LERC	Schweikhard, W. G.	NAG 3-11	2693
41	UNIV OF KANSAS	Shaw, R. J.	LERC	Kohlman, D. L.	NAG 3-71	2695
41	UNIV OF KANSAS	Shaw, R. J.	LERC	Schweikhard, W. G.	NAG 3-273	2698
41	UNIV OF KANSAS	Shaw, R. J.	LERC	Schweikhard, W. G.	NCC 1-70	2792
41	UNIV OF MAINE-ORONO	Johnson, W. S.	LARC	Mall, S.	NCCW 3	5154
41	UNIV OF MANCHESTER	Malcolm, G. N.	ARC	Lamont, P. J.	NCCW 3	5154
41	UNIV MARYLAND-COL PK	Walsh, M. J.	LARC	Wallace, J. M.	NAG 1-24	2836
41	UNIV MARYLAND-COL PK	Bushnell, D. M.	LARC	Bernard, P. S.	NAG 1-230	2840
41	UNIV MARYLAND-COL PK	Drummond, J. P.	LARC	Anderson, J. D.	NCC 1-41	2907
41	UNIV MARYLAND-COL PK	Dicarlo, D. J.	LARC	Winkleman, A. E.	NSG 1570	2939
41	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Jones, E.	NGT 21-002-815	2936
41	UNIV MICH-ANN ARBOR	Lee, G.	ARC	Vest, C. M.	NAG 2-118	3246
41	UNIV MICH-ANN ARBOR	Bullock, G.	GSFC	Hays, P.	NAS 5-25691	3288
41	UNIV MICH-ANN ARBOR	Bullock, G.	GSFC	Carignan, G.	NAS 5-26069	3290

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41	UNIV MICH-ANN ARBOR	Powell, R. W.	LARC	Vinh, N. X.	NAG 1-86	3243
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. K.	NSG 1607	3315
41	UNIV MICH-ANN ARBOR	Willis, E.	LERC	Vangunst, R. W.	NAG 3-168	3249
41	U MINN-MNPLS-ST PAUL	Chapman, G. T.	ARC	Moran, J. P.	NAG 2-4	3333
41	U MINN-MNPLS-ST PAUL	Adams, W. M., Jr.	LARC	Garrard, W. L.	NAG 1-217	3331
41	UNIV MO-COLUMBIA	Brown, J. L.	ARC	Miles, J. B.	NCC 2-199	3395
41	UNIV MO-ROLLA	Holst, T. L.	ARC	Lee, S. C.	NCA 2-450001	3405
41	UNIV MO-ROLLA	Holst, T. L.	ARC	Lee, S. C.	NCA 2-450201	3406
41	UNIV MO-ROLLA	Holmes, B. J.	LARC	Selberg, B. P.	NAG 1-26	3396
41	UNIV MO-ROLLA	Moss, J. N.	LARC	Nelson, H. F.	NAG 1-125	3397
41	UNIV MO-ROLLA	Watson, W. R.	LARC	Eversman, W.	NAG 1-198	3398
41	UNIV MO-ROLLA	Powell, C. A.	LARC	Koval, L. R.	NAG 1-240	3399
41	UNIV MO-ROLLA	Hefner, J. N.	LARC	Patterson, G. K.	NSG 1452	3408
41	UNIV MO-ROLLA	Baumeister, K. J.	LERC	Eversman, W.	NAG 3-178	3400
41	UNIV NEVADA-L VEGAS	Bland, S. R.	LARC	Fromme, J. A.	NAG 1-84	3456
41	UNIV OF NEVADA-RENO	Anderson, D. J.	ARC	Chisholm, J. P.	NCC 2-134	3459
41	UNIV OF NEVADA-RENO	Buell, D. A.	ARC	Rose, W. C.	NSG 2291	3480
41	UNIV OF NEW MEXICO	Hwang, D. P.	LERC	Chou, D. C.	NAG 3-207	3566
41	UNIV OF NOTRE DAME	Somers, D. M.	LARC	Mueller, T. J.	NSG 1419	2616
41	UNIV OKLAHOMA-NORMAN	Koenig, D. G.	ARC	Krothapalli, A.	NCA 2-580001	4137
41	UNIV OF PACIFIC	Steinle, F. W., Jr.	ARC	Pejack, E. R.	NAG 2-192	1928
41	UNIV OF PACIFIC	Reinhardt, W.	ARC	Topp, W.	NCA 2-588202	1933
41	UNIV OF PITTSBURGH	Culbertson, P. E.	HQ-AD	Fletcher, J. C.	NASW 3571	4303
41	UNIV OF SANTA CLARA	Lomax, H.	ARC	Vinokur, M.	NCC 2-16	1959
41	UNIV OF SANTA CLARA	Rubesin, M. W.	ARC	Higuchi, H.	NCC 2-98	1962
41	UNIV OF SANTA CLARA	Tauber, M. E.	ARC	Aggarwal, H. A.	NCC 2-191	1969
41	UNIV OF SANTA CLARA	Sandercock, D. M.	LERC	Roberts, W. B.	NAG 3-212	1946
41	UNIV OF SOUTHAMPTON	Ladson, C. L.	LARC	Goodyer, M. J.	NSG 7172	5157
41	UNIV OF SOUTHAMPTON	Boyden, R. P.	LARC	Goodyer, M. J.	NSG 7523	5158
41	UNIV OF SOUTHERN CAL	Hefner, J. N.	LARC	Blackwelder, R. F.	NAG 1-19	1971
41	UNIV OF SOUTHERN CAL	Fichter, W. B.	LARC	Miller, R. K.	NAG 1-235	1972
41	UNIV TENNESSEE-KNOXV	Steinle, F. W., Jr.	ARC	Wu, J. M.	NAG 2-71	4362
41	UNIV TENNESSEE-KNOXV	Schairer, E. T.	ARC	Wu, J. M.	NAG 2-193	4363
41	UNIV TENNESSEE-KNOXV	Steinle, F. W., Jr.	ARC	Tirres, C.	NCA 2-772901	4381
41	UNIV TENNESSEE-KNOXV	Bland, S. R.	LARC	Kimble, K. R.	NSG 1224	4389
41	UNIV TENNESSEE-KNOXV	Siegel, R.	LARC	Kurosaka, M.	NSG 3287	4390
41	UNIV TENNESSEE-KNOXV	Baumeister, K. J.	LERC	White, J. W.	NAG 3-18	4364
41	UNIV TENNESSEE-KNOXV	Shaw, R. J.	LERC	Keshock, E. G.	NAG 3-83	4365
41	UNIV TENNESSEE-KNOXV	Rostafinski, W.	LERC	Caruthers, J. E.	NAG 3-86	4366
41	UNIV TENNESSEE-KNOXV	Shaw, R. J.	LERC	Keshock, E. G.	NAG 3-90	4367
41	UNIV TENNESSEE-KNOXV	Hingst, W. R.	LERC	Wu, J. M.	NAG 3-233	4368
41	UNIV TENNESSEE-KNOXV	Gladden, H. J.	LERC	Schulz, R.	NAS 3-23278	4371
41	UNIV TEXAS-AUSTIN	Lasinski, T. A.	ARC	Carey, G. F.	NAG 2-5	4568
41	UNIV TEXAS-AUSTIN	Marvin, J. G.	ARC	Bertin, J. J.	NCC 2-189	4611
41	UNIV TEXAS-AUSTIN	Goodrich, W. D.	JSC	Bertin, J. J.	NAS 9-13680	4593
41	UNIV TEXAS-AUSTIN	Chamis, C. C.	LERC	Spanos, P. D.	NAG 3-210	4573
41	UNIV TEXAS-AUSTIN	Sokol, P. M.	LERC	Dulikravic, G. S.	NAG 3-317	4575
41	UNIV TEXAS-AUSTIN	Chamis, C. C.	LERC	Oden, J. T.	NAG 3-329	4576
41	UNIV TEXAS-DALLAS	Bullock, G.	GSFC	Heelis, R. A.	NAS 5-26068	4642
41	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Winningham, J. D.	NAS 5-26070	4643
41	UNIV TEXAS-DALLAS	Bullock, G. D.	GSFC	Hanson, W. B.	NAS 5-26071	4644
41	UNIV TEXAS-EL PASO	Albers, J. A.	DFRF	Riter, S.	NCC 4-4	4661
41	UNIV OF TOLEDO	Shaw, R. J.	LERC	Dewitt, K. J.	NAG 3-72	4091
41	UNIV OF TOLEDO	Hingst, W. R.	LERC	Keith, T. G., Jr.	NAG 3-309	4096
41	UNIV OF TOLEDO	Brown, G. V.	LERC	Kaza, K. R.	NSG 3139	4104
41	UNIV OF VIRGINIA	Taylor, R. T.	LARC	Kugitman, A. R.	NAS 1-16286	4860
41	UNIV OF VIRGINIA	Carter, C. H.	HQ-LB	Pilkey, W. D.	NGT 47-005-800	4871
41	UNIV OF WALES	Stroud, W. J.	LARC	Williams, F. W.	NCCW 2	5155
41	UNIV OF WASHINGTON	Lee, G.	ARC	Childs, M. E.	NGL 48-002-047	5031
41	UNIV OF WASHINGTON	Lee, G.	ARC	Childs, M. E.	NGR 48-002-141	5032

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41	UNIV OF WASHINGTON	Watson, D. M.	ARC	Joppa, R. G.	NSG 2176	5033
41	UNIV OF WASHINGTON	Putnam, L. E.	LARC	MacCormack, R. W.	NAS 1-17170	5019
41	UNIV OF WASHINGTON	Hingst, W. R.	LERC	Childs, M. E.	NAG 3-256	4992
41	UNIV OF WASHINGTON	Braun, W. H.	LERC	Dickson, L. J.	NSG 3261	5036
41	UNIV OF WATERLOO	Chapman, G. T.	ARC	Hui, W. H.	NAGW 130	5150
41	UNIV WISC-MILWAUKEE	Viegas, J. R.	ARC	Amano, R. S.	NAG 2-160	5128
41	UNIV OF WYOMING	Dow, M. B.	LARC	Adams, D. F.	NAG 1-272	5131
41	VILLANOVA UNIVERSITY	Crabill, N. L.	LARC	Goldberg, J. H.	NAS 1-16095	4315
41	VIRGINIA POLY INST	Marvin, J. G.	ARC	Pierce, F. J.	NSG 2301	4972
41	VIRGINIA POLY INST	Price, D. B.	LARC	Kelly, H. J.	NAG 1-52	4889
41	VIRGINIA POLY INST	Zoby, E. V.	LARC	Lewis, C. H.	NAG 1-53	4890
41	VIRGINIA POLY INST	Newsom, J. R.	LARC	Anderson, L. R.	NAG 1-80	4893
41	VIRGINIA POLY INST	Melfi, L. T.	LARC	Lewis, C. H.	NAG 1-101	4895
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Schetz, J. A.	NAG 1-119	4897
41	VIRGINIA POLY INST	Sobieski, J. E.	LARC	Hallauer, W. L.	NAG 1-145	4903
41	VIRGINIA POLY INST	Bushnell, D. M.	LARC	Telionis, D. P.	NAG 1-146	4904
41	VIRGINIA POLY INST	Starnes, J. H.	LARC	Haftka, R. T.	NAG 1-168	4906
41	VIRGINIA POLY INST	Starnes, J. H.	LARC	Duke, J. C.	NAG 1-193	4910
41	VIRGINIA POLY INST	Starnes, J. H.	LARC	Johnson, E. R.	NAG 1-201	4911
41	VIRGINIA POLY INST	Gracey, C.	LARC	Kelley, H. J.	NAG 1-203	4912
41	VIRGINIA POLY INST	Zoby, E. V.	LARC	Lewis, C. H.	NAG 1-220	4913
41	VIRGINIA POLY INST	Adelman, H. M.	LARC	Haftka, R. T.	NAG 1-224	4914
41	VIRGINIA POLY INST	O'brien, T. K.	LARC	Stinchcomb, W. W.	NAG 1-232	4917
41	VIRGINIA POLY INST	Frink, N. T.	LARC	Marchman, J. F., III	NAG 1-274	4923
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Saric, W. S.	NAG 1-280	4924
41	VIRGINIA POLY INST	Dwoyer, D. L.	LARC	Grossman, B.	NAG 1-289	4925
41	VIRGINIA POLY INST	Williams, J. G.	LARC	Post, D.	NAG 1-291	4926
41	VIRGINIA POLY INST	Erickson, W. D.	LARC	Hobeika, A. G.	NCC 1-20	4951
41	VIRGINIA POLY INST	Barnwell, R. W.	LARC	Saric, W. S.	NCC 1-71	4954
41	VIRGINIA POLY INST	Heffner, J. N.	LARC	Nayfeh, A. H.	NSG 1255	4962
41	VIRGINIA POLY INST	Yates, E. C., Jr.	LARC	Mook, D. T.	NSG 1262	4963
41	VIRGINIA POLY INST	Creedon, J. F.	LARC	Vanlandingham, H. F.	NSG 1354	4964
41	VIRGINIA POLY INST	Hefner, J. N.	LARC	Saric, W. S.	NSG 1608	4970
41	VIRGINIA POLY INST	Krejsa, E. A.	LERC	Mahan, J. R.	NAG 3-124	4931
41	VIRGINIA POLY INST	Chamis, C. C.	LERC	Reddy, J. N.	NAG 3-208	4933
41	VIRGINIA POLY INST	Johns, A. L.	LERC	Jakubowski, A. K.	NSG 3073	4973
41	VIRGINIA POLY INST	Flemings, D. P.	LERC	Mitchell, L. D.	NSG 3239	4974
41	VIRGINIA POLY INST	Lehtinen, B.	LERC	Leonard, R. G.	NSG 3275	4976
41	VIRGINIA POLY INST	Carter, C. H.	HQ-LB	Marchman, J. F.	NGT 47-004-800	4956
41	VIRGINIA POLY INST	Carter, C. H.	HQ-LB	Telionis, D. P.	NGT 47-004-801	4957
41	VIRGINIA POLY INST	Carter, C. H.	HQ-LB	Marchman, J. F.	NGT 47-004-802	4958
41	VIRGINIA POLY INST	Carter, C. H.	HQ-LB	Schetz, J. A.	NGT 47-004-803	4959
41	WASHINGTON UNIVERSTY	Young, W. H., Jr.	LARC	Peters, D. A.	NAG 1-250	3412
41	WASHINGTON UNIVERSTY	Williams, J. G.	LARC	Hahn, H. T.	NAG 1-295	3413
41	WAYNE STATE UNIV	Maestrello, L.	LARC	Chow, P. L.	NAG 1-113	3323
41	WAYNE STATE UNIV	Maestrello, L.	LARC	Chow, P. L.	NSG 1330	3325
41	WESTERN MICHIGAN U	Schmidt, H. W.	LERC	Behm, H. D.	NAG 3-92	3326
41	WICHITA STATE UNIV	Holmes, B. J.	LARC	Wentz, W. H.	NAG 1-114	2739
41	WICHITA STATE UNIV	Weidner, J. P.	LARC	Zumwalt, G. W.	NCC 1-31	2741
41	WICHITA STATE UNIV	McGhee, R. J.	LARC	Wentz, W. H., Jr.	NSG 1165	2742
41	WICHITA STATE UNIV	Rogers, R. C.	LARC	Zumwalt, G. W.	NSG 1575	2743
41	WICHITA STATE UNIV	Schmidt, H. W.	LERC	Zumwalt, G. W.	NAG 3-284	2740
41	WICHITA STATE UNIV	Savino, J. M.	LERC	Wentz, W. H., Jr.	NSG 3277	2745
41	YOUNGSTOWN STATE U	Creedon, J. F.	LARC	Foulkes, R. H.	NAG 1-88	4114
42	BROWN UNIVERSITY	Boyce, J. M.	HQ-EL	Head, J. W.	NAGW 137	4319
42	CITY COLLEGE OF N Y	Montgomery, R. C.	LARC	Thau, F. E.	NAG 1-6	3577
42	CLEVELAND STATE UNIV	Bercaw, R. W.	LERC	Chang, G. C.	NCC 3-19	3977
42	COLLEGE OF WM & MARY	Price, D. B.	LARC	Rublein, G. T.	NAG 1-209	4737
42	MASS INST OF TECH	Kerslake, W. R.	LERC	Kolm, H. H.	NSG 3175	3166
42	MASS INST OF TECH	Venneri, S. L.	HQ-RT	Mar, J. W.	NAGW 21	3091

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42	OHIO STATE UNIV	Woolley, C. T.	LARC	Klein, C. A.	NAG 1-30	3991
42	OHIO STATE UNIV	Saviro, J. M.	LERC	Gregorer, G. M.	NAG 3-330	4004
42	OLD DOMINION UNIV	Kumar, A.	LARC	Tiwari, S. N.	NAS 1-16931	4801
42	OLD DOMINION UNIV	Cooper, P. A.	LARC	Prabhakaran, R.	NCC 1-26	4805
42	OREGON STATE UNIV	Savino, J. M.	LERC	Wilson, R. E.	NAG 3-278	4146
42	PRINCETON UNIVERSITY	Ritter, M.	GSFC	York, D. G.	NAG 5-241	3500
42	PRINCETON UNIVERSITY	Banks, B.	LERC	O'Neill, G. K.	NSG 3176	3527
42	SOUTHERN METHODIST U	Marvin, J. G.	ARC	Simpson, R. L.	NSG 2354	4466
42	STANFORD UNIVERSITY	Howe, J. T.	ARC	Bershadar, D.	NCC 2-10	1502
42	STANFORD UNIVERSITY	Lorell, K. R.	ARC	Powell, J. D.	NCC 2-29	1506
42	STANFORD UNIVERSITY	Montgomery, R. C.	LARC	Cannon, R. H., Jr.	NAG 1-97	1408
42	STANFORD UNIVERSITY	Montgomery, R. C.	LARC	Ashley, H.	NAG 1-236	1412
42	STANFORD UNIVERSITY	Diesposti, R. S.	LERC	Breakwell, J. V.	NAG 3-63	1435
42	STATE UNIV NY-ALBANY	Whiting, E. E.	HQ-RT	Ratcliff, K. F.	NSG 7501	3772
42	UNIV OF ARIZONA	Hansen, Q. M.	ARC	Parks, R. E.	NAS 2-10903	1171
42	UNIV OF CHICAGO	Fimmel, R. O.	ARC	Simpson, J. A.	NAS 2-11126	2477
42	UNIV COLORADO-BOLDR	Jackson, R. W.	ARC	Stuart, J. R.	NAG 2-178	2040
42	UNIV COLORADO-BOLDR	Jackson, R. W.	ARC	Stuart, J. R.	NAG 2-197	2041
42	UNIV OF IOWA	Fimmel, R. O.	ARC	Vanallen, J. A.	NAS 2-11125	2658
42	UNIV OF PENNSYLVANIA	Brown, J. W.	JSC	Badler, N. I.	NAS 9-16634	4291
42	UNIV OF PITTSBURGH	Kerslake, W. R.	LERC	McWilliams, P. A.	NAS 3-22662	4300
42	UNIV STHN COLORADO	Callas, G. P.	ARC	Carestia, R. A.	NCC 2-41	2125
42	UNIV TENNESSEE-KNOXV	McMillion, J. M.	MSFC	Hung, J. C.	NAS 8-34426	4378
42	UNIV TEXAS-AUSTIN	Hughes, W. E.	GSFC	Silverberg, E.	NASW 3296	4607
42	UNIV TEXAS-AUSTIN	Bond, V.	JSC	Nacozy, P. E.	NAS 9-16308	4602
42	UNIV OF VIRGINIA	Horner, G. C.	LARC	Pilkey, W. D.	NAG 1-137	4842
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Johnson, C. R.	NAG 1-7	4888
42	VIRGINIA POLY INST	Williams, J. P.	LARC	Meirovitch, L.	NAG 1-225	4915
42	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Meirovitch, L.	NCC 1-4	4948
43	CASE WESTERN RESERVE	Hsu, L. C.	LERC	Liu, C. C.	NAG 3-66	3896
43	CASE WESTERN RESERVE	Domitz, S.	LERC	Angus, J. C.	NAG 3-191	3909
43	CATHOLIC UNIVERSITY	Friedman, R.	LERC	Moynihan, C. T.	NAG 3-94	2163
43	CLEVELAND STATE UNIV	Dutta, S.	LERC	Yeh, H. C.	NSG 3155	3979
43	LA ST U&A&M COL-BRGE	Haggard, J.	LERC	Frenklach, M.	NAS 3-23542	2771
43	NO CAROLINA STATE U	Reid, M. A.	LERC	Fedkiw, P. S.	NAG 3-306	3863
43	RENSSELAER POLY-NY	Friedman, R.	LERC	Moynihan, C. T.	NAG 3-213	3735
43	RICE UNIVERSITY	Lin, C. H.	JSC	Doviak, R. J.	NAS 9-15630	4445
43	STANFORD UNIVERSITY	Poppa, H.	ARC	Boudart, M.	NCA 2-745105	1488
43	UNIV OF AKRON	Carter, C. H.	HQ-LB	Savinelli, R. F.	NGT 36-001-802	4051
43	UNIV OF AKRON	Carter, C. H.	HQ-LB	Savinelli, R. F.	NGT 36-001-803	4052
43	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Tinoco, I.	NCA 2-50204	1630
43	UNIV CALIF-BERKELEY	Altman, R. L.	ARC	Grens, E. A.	NCC 2-163	1640
43	UNIV CALIF-BERKELEY	Aliman, R. L.	ARC	Grens, E. A.	NCC 2-164	1641
43	UNIV OF DELAWARE	Alterescu, S.	GSFC	Glass, W. P.	NAS 5-26273	2159
43	U PUERTO RICO-MAYAGZ	Simon, W. E.	JSC	Rios, J.	NAS 9-16549	5145
43	UNIV OF SHEFFIELD	Lyons, V. J.	LERC	Chigier, N. A.	NSG 7517	5156
43	UNIV OF TOLEDO	Buckley, D. H.	LERC	Rengstorff, G. W.	NAG 3-276	4095
43	UNIV OF VIRGINIA	Carter, C. H.	HQ-LB	Lilleleht, L. U.	NGT 47-005-801	4872
43	YALE UNIVERSITY	Kohl, F. J.	LERC	Rosner, D. E.	NAG 3-201	2141
44	HOWARD UNIVERSITY	Alcorn, G. E.	GSFC	Harris, G. L.	NAG 5-246	2214
44	NO CAR A&T STATE U	Montgomery, R. C.	LARC	Abu-saba, E. G.	NCC 1-37	3848
44	NO CAR A&T STATE U	Rhodes, M. D.	LARC	Sharma, A. V.	NSG 1631	3852
44	UNIV OF AKRON	Carter, C. H.	HQ-LB	Fertis, D. G.	NGT 36-001-800	4049
44	UNIV OF AKRON	Carter, C. H.	HQ-LB	Chang, T. Y.	NGT 36-001-801	4050
44	UNIV CALIF-BERKELEY	Carter, C. H.	HQ-LB	Auslander, D. M.	NGT 05-003-801	1659
44	UNIV COLORADO-BOLDR	Brooks, W. F.	ARC	Sture, S.	NAG 2-58	2039
44	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	McCuen, R. H.	NGT 21-002-800	2921
44	VIRGINIA POLY INST	Whitlock, C. H.	LARC	Kuo, C. Y.	NAG 1-123	4898
45	ALABAMA A&M UNIV	Bilbro, J. W.	MSFC	Murty, S. R.	NSG 8037	1006
45	AUBURN UNIV-AUBURN	Dehaye, R.	MSFC	Kerns, D. V.	NAS 8-33092	1011

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45	AUBURN UNIV-AUBURN	Harper, W.	MSFC	Shumpert, T.	NAS 8-33880	1012
45	CARNEGIE-MELLON UNIV	Lupton, A. O.	LARC	Siewiorek, D. P.	NAG 1-190	4169
45	CARNEGIE-MELLON UNIV	Wilson, R. G.	LARC	Casasent, D.	NAS 1-16125	4175
45	CARNEGIE-MELLON UNIV	Baumbick, R. J.	LERC	Casasent, D.	NAG 3-5	4171
45	CASE WESTERN RESERVE	Haugland, E. H.	LERC	Pyee, M. M.	NAG 3-187	3908
45	CASE WESTERN RESERVE	Heighway, J. E.	LERC	Ferendeci, A. M.	NAG 3-225	3915
45	CASE WESTERN RESERVE	Lalli, V. R.	LERC	Schultz, W. L.	NAG 3-253	3922
45	CASE WESTERN RESERVE	Downey, A. N.	LERC	Collins, R. E.	NAG 3-288	3928
45	CASE WESTERN RESERVE	Smetana, J.	LERC	Collins, R. E.	NAG 3-291	3930
45	CASE WESTERN RESERVE	Stevens, G. H.	LERC	Claspy, P. C.	NSG 3085	3948
45	CATHOLIC UNIVERSITY	Heaney, J. B.	GSFC	Lally, J. F.	NAS 5-26226	2164
45	CITY COLLEGE OF N Y	Schadelbauer, S.	JSC	Schilling, D. L.	NAS 9-16473	3585
45	CITY COLLEGE OF N Y	Salzman, J. A.	LERC	Schilling, D. L.	NAG 3-119	3579
45	CITY COLLEGE OF N Y	Connolly, D. J.	LERC	Schilling, D.	NAG 3-299	3582
45	CITY U N Y-GRAD SCHL	Evans, D. D.	LERC	Schilling, D. L.	NAG 3-277	3590
45	CLEVELAND STATE UNIV	Hatvani, B. R.	LERC	Klingshirm, E. A.	NAG 3-108	3959
45	CLEVELAND STATE UNIV	Whyte, W. A.	LERC	Groumpos, P. P.	NAG 3-156	3963
45	CLEVELAND STATE UNIV	Triner, J. E.	LERC	Maisel, J. E.	NAG 3-169	3965
45	CLEVELAND STATE UNIV	Weinberg, I.	LERC	Goradia, M. G.	NAG 3-241	3967
45	CLEVELAND STATE UNIV	Curtis, H. B.	LERC	Goradia, C.	NAG 3-249	3968
45	CLEVELAND STATE UNIV	Bercaw, R. W.	LERC	Piszczor, Jr., M. F.	NAG 3-338	3971
45	CLEVELAND STATE UNIV	Leibecki, H. F.	LERC	Jain, C.	NCC 3-16	3975
45	CLEVELAND STATE UNIV	Connolly, D. J.	LERC	Groumpos, P. P.	NCC 3-20	3978
45	COLUMBIA UNIVERSITY	Leroy, B. E.	LERC	Meadows, H.	NAS 3-22464	3610
45	CORNELL UNIVERSITY	McCreight, C. R.	ARC	Lee, C. A.	NSG 2389	3673
45	CORNELL UNIVERSITY	Conway, E. J.	LARC	Ballantyne, J. M.	NAG 1-83	3631
45	CORNELL UNIVERSITY	Magee, C. J.	LARC	Eastman, L. F.	NAG 1-208	3633
45	CORNELL UNIVERSITY	Magee, C. J.	LARC	Ballantyne, J. M.	NSG 1642	3669
45	CORNELL UNIVERSITY	Walker, G. H.	LARC	Ballantyne, J. M.	NSG 1651	3670
45	CORNELL UNIVERSITY	Gilbert, L. J.	LERC	Thomas, R. J.	NAG 3-104	3640
45	DUKE UNIVERSITY	Kolecki, J. C.	LERC	Wilson, T. G.	NSG 3157	3843
45	GEORGE WASHINGTON U	Meneghini, R.	GSFC	Lang, R. H.	NAG 5-83	2179
45	GEORGE WASHINGTON U	Ondrus, P. J.	GSFC	Lee, T. N.	NAS 5-27273	2183
45	GEORGE WASHINGTON U	Croswell, W. F.	LARC	Liebowitz, H.	NGR 09-010-096	2196
45	GEORGE WASHINGTON U	Bailey, M. C.	LARC	Liebowitz, H.	NSG 1110	2198
45	GEORGIA INST OF TECH	King, L. J.	GSFC	Gagliano, J. A.	NAS 5-26220	2357
45	GEORGIA INST OF TECH	King, L. J.	GSFC	Gagliano, J. A.	NAS 5-26528	2359
45	GEORGIA INST OF TECH	Dod, L. R.	GSFC	Unavailable	NAS 5-27385	2363
45	GEORGIA INST OF TECH	King, L. J.	GSFC	Forsythe, R. E.	NSG 5012	2384
45	GEORGIA INST OF TECH	Eggers, D. S.	JSC	Cooke, W. P.	NAS 9-16353	2368
45	GEORGIA INST OF TECH	Clark, L. G.	LARC	Blue, M. D.	NAS 1-14654	2348
45	GEORGIA INST OF TECH	O'neal, R. L.	LARC	Gaylord, T. K.	NAS 1-15370	2349
45	GEORGIA INST OF TECH	Krawczonek, W. M.	LERC	Gallagher, J. J.	NAG 3-282	2347
45	GEORGIA INST OF TECH	Gleason, E. H.	MSFC	Gagliano, J. A.	NAS 8-33800	2365
45	GEORGIA INST OF TECH	Gleason, E. H.	MSFC	Kozakoff, D. J.	NAS 8-34543	2366
45	HOFSTRA UNIVERSITY	Johnson, J. W.	LARC	Weissman, W. E.	NGR 33-209-002	3688
45	HOWARD UNIVERSITY	Alcorn, G. E.	GSFC	Harris, G. L.	NAG 5-180	2211
45	HOWARD UNIVERSITY	Santarpia, D. E.	GSFC	Chowdhary, R.	NAS 5-26019	2221
45	HOWARD UNIVERSITY	Chrissotimos, N. G.	GSFC	Chowdhary, R.	NAS 5-26531	2222
45	HOWARD UNIVERSITY	Downey, A. N.	LERC	Wang, Y. C.	NAG 3-228	2205
45	HOWARD UNIVERSITY	Carter, C. H.	HQ-LB	DeLoatch, E. M.	NGT 09-011-801	2228
45	ILL INST OF TECH	Miller, W. H.	GSFC	Costello, D. J., Jr.	NAG 5-234	2440
45	JOHNS HOPKINS UNIV	Pitts, F. L.	LARC	Masson, G. M.	NSG 1442	2824
45	MASS INST OF TECH	Elliott, J. R.	LARC	Stein, G.	NAG 1-2	3032
45	MASS INST OF TECH	Magee, C. J.	LARC	Fonstad, C. G.	NAG 1-48	3034
45	MASS INST OF TECH	Hayes, P. J.	LARC	Epstein, D. J.	NAG 1-98	3037
45	MASS INST OF TECH	Connolly, D. J.	LERC	Burke, B. F.	NAG 3-215	3065
45	MASS INST OF TECH	Maslowski, E. A.	LERC	Lang, J. H.	NAG 3-257	3066
45	MICHIGAN STATE UNIV	Shu, P. K.	GSFC	Siegel, M.	NAS 5-26445	3231
45	MISSISSIPPI STATE U	Dehay, R. F.	MSFC	Wade, T. E.	NAS 8-33448	3365

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45	MISSISSIPPI STATE U	Edge, T. M.	MSFC	Causey, W. H.	NAS 8-33450	3366
45	MISSISSIPPI STATE U	Sieler, B. K.	MSFC	Ingels, F. M.	NAS 8-33887	3368
45	MISSISSIPPI STATE U	Carter, C. H.	HQ-LB	Mitchell, J. R.	NGT 25-001-801	3377
45	MISSISSIPPI STATE U	Carter, C. H.	HQ-LB	Ingels, F. M.	NGT 25-006-800	3378
45	NEW MEX ST U-LAS CR	Blum, A.	GSFC	Gilcrease, A.	NAS 5-26662	3555
45	NO CAR A&T STATE U	Magee, C. J.	LARC	Stefanakos, E.	NSG 1390	3850
45	NO CAROLINA STATE U	Hudson, C.	LARC	Snyder, W. E.	NAG 1-20	3855
45	NO CAROLINA STATE U	Lupton, A. O.	LARC	Gault, J. W.	NAG 1-194	3857
45	NO CAROLINA STATE U	Batson, V. M.	LARC	Rajala, S. A.	NSG 1355	3876
45	NO CAROLINA STATE U	Bailey, M. C.	LARC	Kauffman, J. F.	NSG 1588	3879
45	OHIO STATE UNIV	Wolfe, J. H.	ARC	Kraus, J. D.	NSG 2162	4024
45	OHIO STATE UNIV	Gilreath, M. C.	LARC	Burnside, W. D.	NSG 1498	4021
45	OHIO STATE UNIV	Gilreath, M. C.	LARC	Peters, L.	NSG 1613	4022
45	OHIO STATE UNIV	Miller, E. F.	LERC	Levis, C. A.	NAG 3-159	4003
45	OHIO STATE UNIV	Ippolito, L. J.	HQ-EC	Hodge, D. B.	NASW 3393	4013
45	OHIO UNIVERSITY	Howell, W. E.	LARC	McFarland, R. H.	NGR 36-009-017	4039
45	OLD DOMINION UNIV	Bailey, M. C.	LARC	Moskowitz, S. M.	NAG 1-63	4776
45	OLD DOMINION UNIV	Hellbaum, R. F.	LARC	Goglia, G. L.	NSG 1177	4820
45	OLD DOMINION UNIV	Gainer, P. A.	LARC	Varanasi, M. R.	NSG 1379	4824
45	OLD DOMINION UNIV	Gilreath, M. C.	LARC	Mielke, R. R.	NSG 1655	4838
45	PRAIRIE VIEW A&M U	Lakowske, S. D.	ARC	Knighton, T. G.	NCA 2-598202	4431
45	PRAIRIE VIEW A&M U	Lakowske, S. D.	ARC	Knighton, T. G.	NCA 2-598203	4432
45	PURDUE UNIVERSITY	Strong, J. P.	GSFC	Reeves, A. P.	NAG 5-3	2582
45	PURDUE UNIVERSITY	Yates, I. C.	MSFC	Taylor, R. E.	NAS 8-34303	2592
45	QUEENSBOROUGH COMM C	Webster, L. D.	ARC	Zanger, H.	NCC 2-108	3723
45	RENSSELAER POLY-NY	Armstrong, E. S.	LARC	Balas, M. J.	NAG 1-171	3725
45	RENSSELAER POLY-NY	Brinker, D.	LERC	Ghandi, S. K.	NAG 3-188	3731
45	SAN JOSE STATE UNIV	Deboo, G. J.	ARC	Strasilla, U.	NAG 2-85	1357
45	SAN JOSE STATE UNIV	Deboo, G. J.	ARC	Yuen, C.	NCC 2-143	1394
45	SO ILL UNIV-CARBONDL	Bankaitis, H. V.	LERC	Dodd, C. W.	NCC 3-7	2467
45	STANFORD UNIVERSITY	Leonard, A.	ARC	Buneman, O.	NCA 2-745906	1499
45	STANFORD UNIVERSITY	Buften, J. L.	GSFC	Byer, R. L.	NAG 5-220	1445
45	STANFORD UNIVERSITY	Browell, E. V.	LARC	Byer, R. L.	NAG 1-182	1410
45	STANFORD UNIVERSITY	Whyte, W. A.	LERC	Lusignan, B. B.	NAG 3-151	1436
45	SYRACUSE UNIVERSITY	Benz, H. F.	LARC	Kowel, S. T.	NSG 1602	3827
45	SYRACUSE UNIVERSITY	Stermer, R. L., Jr.	LARC	Kowel, S. T.	NSG 1611	3828
45	TEXAS A&M UNIVERSITY	Wang, J. R.	GSFC	Blanchard, A. J.	NAS 5-26686	4487
45	TEXAS A&M UNIVERSITY	Hearn, C. P.	LARC	Painter, J. H.	NSG 1639	4528
45	TEXAS A&M UNIVERSITY	Nowakowski, M. F.	MSFC	Parker, P. L.	NAS 8-33519	4491
45	TEXAS TECH UNIV	Pitts, F. L.	LARC	Trost, T. F.	NAG 1-28	4533
45	TUSKEGEE INSTITUTE	Peacock, C. L.	MSFC	Doreswamy, C. V.	NAG 8-5	1021
45	UNIV CALIF-BERKELEY	Clark, T. A.	GSFC	Welch, W. J.	NAG 5-95	1579
45	UNIV CALIF-L ANGELES	Abbott, L. W.	DFRF	Smyth, R. K.	NSG 4027	1763
45	UNIV CALIF-L ANGELES	Fripp, A. L.	LARC	Allen, F. G.	NAG 1-267	1700
45	UNIV OF CENTRAL FLA	Byrne, F.	KSC	Petrasko, B.	NAS10-10280	2264
45	UNIV OF CINCINNATI	Stermer, R. L.	LARC	Morarity, J. A.	NAG 1-204	4055
45	UNIV OF CINCINNATI	Sundberg, G. R.	LERC	Henderson, H. T.	NAG 3-297	4063
45	UNIV OF CINCINNATI	Sundberg, G. R.	LERC	Henderson, H. T.	NSG 3022	4071
45	UNIV OF CINCINNATI	Renz, D.	LERC	Schetz, J. A.	NSG 3024	4072
45	UNIV OF DELAWARE	Weinberg, I.	LERC	Barnett, A. M.	NAG 3-321	2155
45	UNIV HOUSTON-HOUSTON	Horner, G. C.	LARC	Denman, E. D.	NSG 1603	4557
45	UNIV OF IDAHO	Morakis, J. C.	GSFC	Maki, G. K.	NAS 5-26534	2434
45	UNIV ILLINOIS-URBANA	Keating, T., Jr.	GSFC	Mitra, R.	NAS 5-25062	2531
45	UNIV ILLINOIS-URBANA	Abshire, J. B.	GSFC	Gardner, C. S.	NSG 5049	2543
45	UNIV ILLINOIS-URBANA	Smetana, J.	LERC	Mitra, R.	NAG 3-149	2519
45	UNIV ILLINOIS-URBANA	Dewitt, R. L.	LERC	Strehlow, R. A.	NAS 3-22666	2529
45	UNIV ILLINOIS-URBANA	Mayr, H. G.	HQ-EZ	Liu, C. H.	NAGW 207	2528
45	UNIV OF KANSAS	Abbott, L. W.	DFRF	Kelley, G. L.	NSG 4026	2737
45	UNIV OF KANSAS	Rango, A.	GSFC	Ulaby, F. T.	NAS 5-23777	2712
45	UNIV OF KANSAS	Smetana, J.	LERC	Biggs, A. W.	NAG 3-150	2697

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45	UNIV MARYLAND-COL PK	Rango, A.	GSFC	Nccuen, R. A.	NAG 5-223	2857
45	UNIV MARYLAND-COL PK	Schneoh, P. B.	GSFC	Yeh, R. T.	NAS 5-26618	2888
45	UNIV MARYLAND-COL PK	Schy, A. A.	LARC	Wang, S. H.	NAG 1-27	2837
45	UNIV MARYLAND-COL PK	Benz, H. F.	LARC	Lin, H. C.	NSG 1468	2938
45	UNIV MD-EASTRN SHORE	Mundy, J. R.	GSFC	Rich, S.	NCA 5-99	2962
45	UNIV OF MASS-AMHERST	Johnson, J. M.	LARC	McIntosh, R. E.	NAG 1-54	3190
45	UNIV OF MASS-AMHERST	Bailey, M. C.	LARC	Pozar, D. M.	NAG 1-163	3192
45	UNIV OF MASS-AMHERST	Johnson, J. W.	LARC	Yngvesson, K. S.	NAG 1-279	3193
45	UNIV MICH-ANN ARBOR	Brace, L. H.	GSFC	Unavailable	NAS 5-27305	3295
45	UNIV MICH-ANN ARBOR	Migneault, G. E.	LARC	Meyer, J. F.	NSG 1306	3314
45	UNIV MO-COLUMBIA	Eggleston, T. W.	JSC	Tranter, W. H.	NAS 9-15477	3392
45	UNIV NEBRASKA-LINCLN	Riley, T. J.	LERC	Woollam, J. A.	NAG 3-95	3438
45	UNIV NEBRASKA-LINCLN	Sundberg, G. R.	LERC	Woollam, J. A.	NAG 3-237	3441
45	UNIV OF NEW MEXICO	Hayes, P. J.	LARC	Grannemann, W. W.	NAG 1-95	3565
45	UNIV NEW SOUTH WALES	Weizer, V. G.	LERC	Green, M. A.	NAGW 287	5146
45	UNIV OF NOTRE DAME	Seldner, K.	LERC	Sain, M. K.	NSG 3048	2617
45	UNIV OF PENNSYLVANIA	Levine, D. M.	GSFC	Kritikos, H. N.	NAG 5-92	4285
45	UNIV OF PENNSYLVANIA	Alcorn, G. E.	GSFC	Zemel, J. N.	NAS 5-27285	4286
45	UNIV TEXAS-AUSTIN	Brasher, M. R.	LERC	Weldon, W. F.	NAG 3-303	4574
45	UNIV TEXAS-AUSTIN	Ippolito, L. J.	HQ-EC	Vogel, W.	NASW 3388	4608
45	UNIV OF TOLEDO	Wythe, W.	LERC	Kwatra, S. C.	NAG 3-42	4090
45	UNIV OF TOLEDO	Stevens, G. H.	LERC	Kwatra, S. C.	NAG 3-157	4093
45	UNIV OF TOLEDO	Gruber, R. P.	LERC	Stuart, T. A.	NSG 3281	4107
45	UNIV OF TORONTO	Staskus, J. V.	LERC	Balmain, K. G.	NSG 7847	5149
45	UNIV OF VIRGINIA	Kahle, D. R.	GSFC	Wilson, S. G.	NAS 5-26011	4864
45	UNIV OF VIRGINIA	Jones, R. L.	GSFC	Mattauch, R. J.	NAS 5-26466	4866
45	UNIV OF VIRGINIA	Peebles, S. W.	LARC	Aylor, J. H.	NAG 1-43	4840
45	UNIV OF VIRGINIA	Stermer, R. L.	LARC	Batchman, T. E.	NAG 1-177	4843
45	UNIV OF VIRGINIA	Jobson, D. J.	LARC	Batchman, T. E.	NAG 1-262	4847
45	UNIV OF VIRGINIA	Miller, E. F.	LERC	Wilson, S. G.	NAG 3-141	4848
45	UNIV OF VIRGINIA	Connolly, D. J.	LERC	Wilson, S. G.	NAG 3-316	4851
45	UNIV OF WASHINGTON	Alger, D. A.	LERC	White, M.	DEN 3-212	4982
45	UNIV WISC-MADISON	Renz, D. D.	LERC	Boom, R. W.	NAG 3-170	5071
45	VIRGINIA POLY INST	Hirschmann, E.	GSFC	Bostian, C. W.	NAS 5-22577	4944
45	VIRGINIA POLY INST	Pitts, F. L.	LARC	Tront, J. G.	NAG 1-132	4901
45	VIRGINIA POLY INST	Montgomery, R. C.	LARC	Vanlandingham, H. F.	NSG 1527	4968
45	VIRGINIA POLY INST	Maslowski, E. A.	LERC	Demerdash, N. A.	DEN 3-65	4887
45	VIRGINIA POLY INST	Kolecki, J. C.	LERC	Lee, F. C.	NAG 3-81	4929
45	VIRGINIA POLY INST	Maslowski, E. A.	LERC	Lee, F. C.	NAG 3-99	4930
45	VIRGINIA POLY INST	Kolecki, J. C.	LERC	Lee, F. C.	NAG 3-220	4934
45	VIRGINIA POLY INST	Sundberg, G. R.	LERC	Chen, D. D.	NAG 3-240	4935
45	VIRGINIA POLY INST	Kolecki, J. C.	LERC	Lee, F. C.	NSG 3274	4975
45	YALE UNIVERSITY	Wallgreen, K.	GSFC	Barker, R. C.	NGL 07-004-005	2148
46	ARIZONA STATE UNIV	Fleming, D. P.	LERC	Nelson, H. D.	NAG 3-6	1094
46	ARIZONA STATE UNIV	Warer, C. J.	LERC	Mongla, H. C.	NAG 3-167	1097
46	AUBURN UNIV-AUBURN	Decker, A. J.	LERC	Swinson, W. F.	NAG 3-103	1010
46	CALIF INST OF TECH	Gross, L. A.	MSFC	Acosta, A. J.	NAS 8-33108	1276
46	CAL STATE U-LG BEACH	Johnson, D. A.	ARC	Modarress, D.	NCA 2-382001	1325
46	CAL STATE U-LG BEACH	Townsend, D. P.	LERC	Akin, L.	NAG 3-20	1324
46	CAL STATE U-L ANGLES	McFadden, J. J.	LERC	Gold, P. I.	NAG 3-73	1326
46	CAL STATE U-L ANGLES	Pohly, J. G.	HQ-LC	Manvi, R.	NASW 3257	1327
46	CARNEGIE-MELLON UNIV	Shih, T.	LERC	Ramos, J. I.	NAG 3-21	4172
46	CARNEGIE-MELLON UNIV	Hendricks, R. C.	LERC	Hughes, W. F.	NAG 3-166	4173
46	CARNEGIE-MELLON UNIV	Srawley, J. E.	LERC	Swedlow, J. L.	NSG 3172	4179
46	CARNEGIE-MELLON UNIV	Carter, C. H.	HQ-LB	Fix, G. J.	NGT 39-087-800	4177
46	CARNEGIE-MELLON UNIV	Carter, C. H.	HQ-LB	Swedlow, J. L.	NGT 39-087-801	4178
46	CASE WESTERN RESERVE	Liebert, C. H.	LERC	Dybbbs, A.	NAG 3-97	3898
46	CASE WESTERN RESERVE	Gaugler, R. E.	LERC	Reshotko, E.	NAG 3-230	3916
46	CASE WESTERN RESERVE	Anderson, D. N.	LERC	T'ien, T. S.	NAG 3-290	3929
46	CASE WESTERN RESERVE	Shannon, J. L., Jr.	LERC	Mendelson, A.	NSG 3251	3954

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46	CLARKSON COL OF TECH	Johnson, W. S.	LARC	Sancaktak, E.	NAG 1-284	3594
46	CLEMSON UNIV-CLEMSON	Poe, C. C., Jr.	LARC	Goree, J. G.	NSG 1297	4342
46	CLEVELAND STATE UNIV	Staiger, P. J.	LERC	Gorla, R. S.	NAG 3-155	3962
46	CLEVELAND STATE UNIV	Coy, J. J.	LERC	Frater, J. J.	NAG 3-186	3966
46	CLEVELAND STATE UNIV	Coy, J. J.	LERC	Flanagan, P. M.	NAG 3-315	3970
46	CLEVELAND STATE UNIV	Wang, C. R.	LERC	Heiles, C. E.	NCC 3-3	3973
46	CLEVELAND STATE UNIV	Savino, J. M.	LERC	Kasuba, R.	NCC 3-6	3974
46	CLEVELAND STATE UNIV	Presler, A. F.	LERC	Alkasab, K. A.	NCC 3-17	3976
46	CLEVELAND STATE UNIV	Lorenzo, C. F.	LERC	Larson, V. H.	NSG 3257	3980
46	COLLEGE OF WM & MARY	Tanner, J. A.	LARC	Andersen, C. M.	NAS 1-15965	4740
46	COLLEGE OF WM & MARY	Tanner, J. A.	LARC	Anderson, C. M.	NCC 1-40	4743
46	COLORADO STATE UNIV	Smith, G. T.	LERC	Smith, F. W.	NAG 3-40	2009
46	COLORADO STATE UNIV	Kerslake, W. R.	LERC	Wilbur, P. J.	NGR 06-002-112	2025
46	DREXEL UNIVERSITY	Gatski, T. B.	LARC	Rosen, G. H.	NAG 1-110	4181
46	GEORGIA INST OF TECH	Gross, B.	LERC	Athuri, S. N.	NAG 3-38	2341
46	GEORGIA INST OF TECH	Jones, W. R.	LERC	Winer, W. O.	NAG 3-77	2343
46	GEORGIA INST OF TECH	Jones, W. R.	LERC	Winer, W. O.	NCC 3-14	2374
46	HOWARD UNIVERSITY	Cygnarowicz, T. A.	GSFC	Watkins, C. B.	NAG 5-25	2207
46	IOWA STATE UNIV	Tanner, J. A.	LARC	Baumgarten, J. R.	NSG 1605	2642
46	IOWA STATE UNIV	Carter, C. H.	HQ-LB	Okiishi, T. H.	NGT 16-002-800	2638
46	ISRAEL INST OF TECH	Hendricks, R. C.	LERC	Etsion, I.	NAGW 327	5160
46	ISRAEL INST OF TECH	Hendricks, R. C.	LERC	Etsion, I.	NAGW 327	5160
46	LEHIGH UNIVERSITY	Lubomski, J. F.	LERC	Johnson, S. H.	NAG 3-135	4207
46	MASS INST OF TECH	Chamis, C. C.	LERC	Pian, T. H.	NAG 3-33	3059
46	MASS INST OF TECH	Rohde, J. E.	LERC	Epstein, A.	NAG 3-335	3071
46	MASS INST OF TECH	Vontiesenhausen, G. F.	MSFC	Minsky, M. L.	NAS 8-34381	3120
46	MICHIGAN STATE UNIV	Holdeman, J. D.	LERC	Foss, J. F.	NAG 3-245	3228
46	MICHIGAN TECH UNIV	Schock, H. J.	LERC	Vilman, C.	NAG 3-326	3238
46	MICHIGAN TECH UNIV	Coy, J. J.	LERC	Passerello, C. E.	NAG 3-344	3239
46	NORTHWESTERN UNIV	Baker, C. E.	LERC	Law, C. K.	NAG 3-53	2447
46	NORTHWESTERN UNIV	Zaretsky, E. V.	LERC	Cheng, H. S.	NAG 3-345	2449
46	NORTHWESTERN UNIV	Wedeven, L. D.	LERC	Cheng, H. S.	NCC 3-13	2460
46	NORTHWESTERN UNIV	Coy, J. J.	LERC	Cheng, H. S.	NSG 3143	2463
46	OHIO STATE UNIV	Brown, G. V.	LERC	Leissa, A. W.	NAG 3-36	4000
46	OKLAHOMA STATE UNIV	Holderman, J. D.	LERC	Lilley, D. G.	NAG 3-74	4118
46	OLD DOMINION UNIV	Garrett, L. B.	LARC	Thornton, E. A.	NAG 1-257	4794
46	OLD DOMINION UNIV	Pappa, R. S.	LARC	Ibrahim, S. R.	NSG 1649	4836
46	PENN STATE U-UNIV PK	Clark, J. S.	LERC	Lestz, S. S.	NAG 3-91	4226
46	PENN STATE U-UNIV PK	Tacina, R. R.	LERC	Faeth, G. M.	NAG 3-190	4228
46	PENN STATE U-UNIV PK	Loomis, W. R.	LERC	Klaus, E. E.	NCC 3-9	4260
46	PENN STATE U-UNIV PK	Marer, C. J.	LERC	Faeth, G. M.	NSG 3306	4279
46	PENN STATE U-UNIV PK	Wilmer, G., Jr.	MSFC	Billet, M. L.	NAS 8-34535	4255
46	PRINCETON UNIVERSITY	McAleese, J. D.	LERC	Dowell, E.	NAG 3-221	3495
46	PURDUE UNIVERSITY	Johnson, W. S.	LARC	Hillberry, B. M.	NAG 1-231	2571
46	PURDUE UNIVERSITY	Clark, J. S.	LERC	Lefebvre, A. H.	NAG 3-266	2579
46	PURDUE UNIVERSITY	Straight, D. M.	LERC	Murthy, S. N.	NAG 3-281	2580
46	PURDUE UNIVERSITY	Haggard, J. B.	LERC	Shifstad, J. G.	NSG 3258	2610
46	RENSSELAER POLY-NY	Kiraly, L. J.	LERC	Loewy, R. G.	NAG 3-37	3729
46	RENSSELAER POLY-NY	Jones, W. R.	LERC	Lauer, J. L.	NAG 3-222	3736
46	RENSSELAER POLY-NY	Graham, R. W.	LERC	Duffy, R. E.	NAG 3-292	3738
46	SAN JOSE STATE UNIV	Stroub, R. H.	ARC	Linecki, A. G.	NCA 2-675101	1366
46	SOUTHEASTN MASS UNIV	Marek, C. J.	LERC	Shen, T.	NAG 3-296	3184
46	STANFORD UNIVERSITY	Lomax, H.	ARC	Hughes, T. R.	NCA 2-745104	1487
46	STANFORD UNIVERSITY	Leonard, A.	ARC	Reynolds, W. C.	NCA 2-745106	1489
46	STANFORD UNIVERSITY	Gaugler, R. E.	LERC	Johnston, J. P.	NAG 3-3	1434
46	STATE U NY-STONY BRK	Carter, C. H.	HQ-LC	Berlad, A. L.	NGT 33-015-801	3811
46	STEVENS INST OF TECH	Kielb, R. E.	LERC	Sisto, F.	NAG 3-47	3546
46	TEXAS A&M UNIVERSITY	Bailey, M. M.	LERC	Lalk, T. R.	NAG 3-142	4476
46	TEXAS A&M UNIVERSITY	Hendricks, R. C.	LERC	Childs, D. W.	NAG 3-181	4477
46	TEXAS A&M UNIVERSITY	Boyle, R. J.	LERC	Han, J. C.	NAG 3-311	4480

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46	TEXAS A&M UNIVERSITY	Garcia, F. F.	MSFC	McDermott, M.	NAS 8-33716	4492
46	TEXAS A&M UNIVERSITY	Fox, T. W.	MSFC	Childs, D. W.	NAS 8-34505	4495
46	TEXAS A&M UNIVERSITY	Garcia, F. F.	MSFC	Morrison, G. L.	NAS 8-34536	4497
46	TEXAS TECH UNIV	Rankin, G.	JSC	Peterson, G. P.	NAS 9-16606	4535
46	TUSKEGEE INSTITUTE	Peoples, J. A.	MSFC	Sellers, J. P., Jr.	NSG 8054	1027
46	UNIV OF AKRON	Chamis, C. C.	LERC	Padovan, J.	NAG 3-54	4041
46	UNIV OF AKRON	Coy, J. J.	LERC	Savage, M.	NAG 3-55	4042
46	UNIV OF AKRON	Hendricks, R. C.	LERC	Padovan, J.	NAG 3-265	4043
46	UNIV OF AKRON	Aydelott, J. C.	LERC	Hochstein, J. I.	NAG 3-318	4046
46	UNIV ALA-HUNTSVILLE	Decher, R.	MSFC	Hendricks, J. B.	NAS 8-29316	1034
46	UNIV ALA-HUNTSVILLE	Urban, E. W.	MSFC	Karr, G. R.	NGT 01-002-083	1068
46	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Auslander, D. M.	NCC 2-67	1635
46	UNIV CALIF-BERKELEY	Schock, H. J.	LERC	Oppenheim, A. K.	NAG 3-137	1575
46	UNIV CALIF-DAVIS	Pollack, J. B.	ARC	White, B. R.	NCA 2-180903	1678
46	UNIV CALIF-IRVINE	Jacina, R. R.	LERC	Elghobashi, S.	NAG 3-176	1690
46	UNIV CALIF-L ANGELES	Vorreiter, J. W.	ARC	Frederking, T. H.	NCC 2-64	1742
46	UNIV CALIF-SAN DIEGO	Altman, R. L.	ARC	Middleman, S.	NCA 2-658001	1827
46	UNIV OF CINCINNATI	Monteith, J. H.	LARC	Brown, D. L.	NSG 1486	4070
46	UNIV OF CINCINNATI	Coy, J. J.	LERC	Fianagan, P. M.	NAG 3-193	4061
46	UNIV OF CINCINNATI	Coy, J. J.	LERC	Huston, R. L.	NSG 3188	4073
46	UNIV OF CINCINNATI	Stubbs, R. M.	LERC	Tabakoff, W.	NSG 3218	4074
46	UNIV OF CONNECTICUT	Goldman, L. J.	LERC	Langston, L. S.	NSG 3238	2134
46	UNIV OF DAYTON	Kieffling, L.	MSFC	Drake, M. L.	NAS 8-34682	4087
46	UNIV OF DELAWARE	Deaton, J. W.	LARC	Pipes, R. B.	NSG 1304	2162
46	UNIV OF FLORIDA	Carter, C. H.	HQ-LB	Tesar, D.	NGT 10-005-802	2296
46	UNIV ILLINOIS-CHICGO	Coy, J. J.	LERC	Litvin, F. L.	NAG 3-48	2507
46	UNIV ILLINOIS-CHICGO	Coy, J. J.	LERC	Litvin, F. L.	NAG 3-136	2508
46	UNIV ILLINOIS-URBANA	Kittel, P.	ARC	Chato, J. C.	NAG 2-144	2516
46	UNIV ILLINOIS-URBANA	Fusaro, R. L.	LERC	Cusano, C.	NAG 3-153	2520
46	UNIV OF KANSAS	Hirschbein, M. S.	LERC	Dodds, R. H.	NAG 3-32	2694
46	UNIV OF KANSAS	Straight, D. M.	LERC	Schweikhard, W. G.	NAG 3-85	2696
46	UNIV OF KANSAS	Ault, L. A.	HQ-ET	Barr, B. G.	NASW 3438	2718
46	UNIV OF KENTUCKY	Cochran, T. H.	LERC	Altenkirch, R. A.	NSG 3114	2759
46	UNIV MICH-ANN ARBOR	Marek, C. J.	LERC	Radhakrishnan, K.	NAG 3-147	3248
46	UNIV MICH-ANN ARBOR	Claus, R.	LERC	Radhakrishnan, K.	NAG 3-294	3251
46	UNIV MICH-ANN ARBOR	Wedeven, L. D.	LERC	Ludema, K. C.	NCC 3-11	3307
46	U MINN-MNPLS-ST PAUL	Gaugler, R. E.	LERC	Simon, T. W.	NAG 3-286	3337
46	UNIV OF SANTA CLARA	Clark, J. S.	LERC	Pefley, R. K.	NAG 3-143	1945
46	UNIV TENNESSEE-KNOXV	Carter, C. H.	HQ-LB	Keefer, D.	NGT 43-001-801	4384
46	UNIV TEXAS-AUSTIN	McCoy, J. E.	JSC	Nacozy, P. E.	NAS 9-16744	4606
46	UNIV OF TOLEDO	Ludwig, L. P.	LERC	Keith, T. E.	NSG 3156	4105
46	UNIV OF VIRGINIA	Kascak, A. F.	LERC	Allaire, P. E.	NAG 3-180	4849
46	UNIV OF VIRGINIA	Cunningham, R. E.	LERC	Humphris, R. R.	NAG 3-263	4850
46	UNIV OF VIRGINIA	Clark, W. D.	MSFC	Gunter, E. J.	NAS 8-31951	4868
46	UNIV OF WASHINGTON	Pittman, C. M.	LARC	Emery, A. F.	NAG 1-41	4983
46	UNIV OF WASHINGTON	Kascar, A. F.	LERC	Wolak, J.	NAG 3-7	4989
46	UNIV OF WASHINGTON	Marek, C. J.	LERC	Pratt, D. T.	NAG 3-227	4991
46	UNIV OF WASHINGTON	Simon, F. F.	LERC	Borman, G. L.	NAG 3-274	5073
46	UNIV WISC-MADISON	Kieffling, L. A.	MSFC	Stoll, H. W.	NAS 8-34506	5130
46	UNIV WISC PLATTEVILLE	Chestnutt, D.	LARC	O'brien, W. F., Jr.	NAG 1-156	4905
46	VIRGINIA POLY INST	Johnson, W. S.	LARC	Brinson, H. F.	NAG 1-227	4916
46	VIRGINIA POLY INST	Johnson, W. S.	LARC	Brinson, H. F.	NAG 1-227	4916
46	WASHINGTON UNIVERSTY	Burns, R.	MSFC	Haefner, L. E.	NAS 8-34341	3422
46	WEST VIRGINIA UNIV	Carter, C. H.	HQ-LB	Padhye, A.	NGT 49-001-800	5060
47	ALABAMA A&M UNIV	Moore, W. W., Jr.	MSFC	Lal, R. B.	NAS 8-32945	1002
47	ARIZONA STATE UNIV	Reeves, F. A.	MSFC	Wagner, J. B.	NAS 8-32937	1111
47	CASE WESTERN RESERVE	Gray, H. R.	LERC	Ebert, L. J.	NAG 3-30	3891
47	CASE WESTERN RESERVE	Thompson, R. L.	LERC	Manson, S. S.	NAG 3-39	3892
47	CASE WESTERN RESERVE	Halford, G. R.	LERC	Manson, S. S.	NAG 3-46	3893
47	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Ebert, L. J.	NAG 3-58	3894
47	CASE WESTERN RESERVE	Serafini, T. T.	LERC	Ritchey, W. M.	NAG 3-163	3906

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47	CASE WESTERN RESERVE	Miner, R. V.	LERC	Welsch, G. E.	NAG 3-218	3911
47	CASE WESTERN RESERVE	Gross, B.	LERC	Chudnovsky, A.	NAG 3-223	3913
47	CASE WESTERN RESERVE	Miller, R. A.	LERC	Mitchell, T. E.	NAG 3-224	3914
47	CASE WESTERN RESERVE	Dreshfield, R. L.	LERC	Wallace, J. F.	NAG 3-268	3924
47	CASE WESTERN RESERVE	Mirtich, N. J.	LERC	Hehemann, R. F.	NAG 3-279	3926
47	CASE WESTERN RESERVE	Kiraly, L. J.	LERC	Halloran, J. W.	NAG 3-287	3927
47	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Halloran, J. W.	NAG 3-324	3933
47	CASE WESTERN RESERVE	Aukerman, C. A.	LERC	Dybbs, A.	NSG 3040	3947
47	CASE WESTERN RESERVE	Gray, H. R.	LERC	Ebert, L. J.	NSG 3246	3953
47	CASE WESTERN RESERVE	Smialek, J. L.	LERC	Halloran, J. W.	NSG 3291	3956
47	CLARKSON COL OF TECH	Reeves, F. A.	MSFC	Wilcox, W. R.	NAS 8-34887	3600
47	CLEMSON UNIV-CLEMSON	Nunes, A. C.	MSFC	Thompson, R. G.	NAS 8-33805	4341
47	CLEVELAND STATE UNIV	Vary, A.	LERC	Hemann, J. H.	NAG 3-106	3958
47	CLEVELAND STATE UNIV	Herbell, T. P.	LERC	Yeh, H. C.	NSG 3259	3981
47	COLORADO STATE UNIV	Nelson, H. G.	ARC	Spain, I. L.	NAG 2-157	2007
47	COLORADO STATE UNIV	Nelson, H. G.	ARC	Etters, R. D.	NAG 2-171	2008
47	COLUMBIA UNIVERSITY	Scheuermann, C. M.	LERC	Tien, J. K.	NAG 3-57	3603
47	CORNELL UNIVERSITY	Nelson, H. G.	ARC	Ruoff, A. L.	NAG 2-158	3636
47	CORNELL UNIVERSITY	Nelson, H. G.	ARC	Ashcroft, N. W.	NAG 2-159	3637
47	CORNELL UNIVERSITY	Brown, G. V.	LERC	Ruoff, A. L.	NSG 7488	3680
47	DARTMOUTH COLLEGE	Whittenberger, J. D.	LERC	Schulson, E. M.	NAG 3-13	3461
47	DARTMOUTH COLLEGE	Kascek, A.	LERC	Kennedy, F. E., Jr.	NSG 3253	3466
47	DREXEL UNIVERSITY	Poe, C. C., Jr.	LARC	Awerbuch, J.	NSG 1606	4200
47	DREXEL UNIVERSITY	Glasgow, T. K.	LERC	Apelian, D.	NAG 3-14	4188
47	GEORGE WASHINGTON U	Prior, E. J.	LARC	Liebowitz, H.	NAG 1-158	2174
47	GEORGE WASHINGTON U	Swann, R. T.	LARC	Liebowitz, H.	NCC 1-36	2190
47	GEORGIA INST OF TECH	Benford, S. M.	LERC	Ribarsky, M. W.	NAG 3-255	2346
47	GEORGIA INST OF TECH	Johnston, M. H.	MSFC	Brown, J. L.	NAS 8-33438	2364
47	JOHNS HOPKINS UNIV	Heyman, J. S.	LARC	Green, R. E., Jr.	NAG 1-211	2802
47	MASS INST OF TECH	Johnston, N. J.	LARC	McGarry, F. J.	NSG 1504	3155
47	MASS INST OF TECH	Hirschberg, M. H.	LERC	Pelloux, R. M.	NAG 3-280	3067
47	MASS INST OF TECH	Dutta, S.	LERC	Haggerty, J. S.	NAG 3-312	3069
47	MASS INST OF TECH	Weinberg, I.	LERC	Gatos, H. C.	NSG 3017	3163
47	MASS INST OF TECH	Vary, A.	LERC	Williams, J. H., Jr.	NSG 3210	3168
47	MASS INST OF TECH	Tuyahov, A. J.	HQ-EL	Gatos, H. C.	NSG 7331	3176
47	MASS INST OF TECH	Testardi, L. R.	HQ-EM	Flemings, M. C.	NSG 7645	3183
47	MICHIGAN STATE UNIV	Mogaw, M. A.	LERC	Martin, J. F.	NAG 3-51	3225
47	MICHIGAN TECH UNIV	Gedwill, M. A.	LERC	Heckel, R. W.	NAG 3-244	3237
47	MICHIGAN TECH UNIV	Barrett, C. A.	LERC	Heckel, R. W.	NSG 3215	3241
47	NO CAR A&T STATE U	Buckley, J. D.	LARC	Botros, B. M.	NSG 1516	3851
47	OHIO STATE UNIV	Bill, R. C.	LERC	Black, J. T.	NSG 3164	4029
47	OHIO STATE UNIV	Vary, A.	LERC	Fu, L. S.	NSG 3269	4032
47	OLD DOMINION UNIV	Outlaw, R. A.	LARC	Heinbockel, J. H.	NAG 1-148	4784
47	OLD DOMINION UNIV	Illg, W.	LARC	Dwivedi, S. N.	NAG 1-191	4787
47	OLD DOMINION UNIV	Illg, W.	LARC	Goglia, G. L.	NAG 1-196	4788
47	PENN STATE U-UNIV PK	Barranger, J. P.	LERC	Bradt, R. C.	NAG 3-68	4225
47	PENN STATE U-UNIV PK	Powell, J. A.	LERC	Spear, K. E.	NAG 3-177	4227
47	PENN STATE U-UNIV PK	Bill, R. C.	LERC	Zamrik, S. Y.	NAG 3-264	4229
47	PURDUE UNIVERSITY	Scheuermann, C. M.	LERC	Radavich, J. F.	NAG 3-59	2574
47	RENSSELAER POLY-NY	Johnston, N. J.	LARC	Sternstein, S. S.	NAG 1-253	3726
47	RENSSELAER POLY-NY	Dicus, D. L.	LARC	Ansell, G. S.	NSG 1510	3747
47	RENSSELAER POLY-NY	Miner, R. V.	LERC	Duquette, D. J.	NAG 3-22	3728
47	RENSSELAER POLY-NY	Powell, J. A.	LERC	Diefen, R. J.	NAG 3-203	3733
47	RENSSELAER POLY-NY	Gray, H. R.	LERC	Glicksman, M. E.	NAG 3-333	3739
47	RENSSELAER POLY-NY	Moore, W. W., Jr.	MSFC	Glicksman, M. E.	NAS 8-32425	3740
47	RENSSELAER POLY-NY	Schaefer, D. A.	MSFC	Wyss, M.	NAS 8-32936	3742
47	RENSSELAER POLY-NY	Greenfield, M. A.	HQ-RT	Loewry, R. G.	NGL 33-018-003	3745
47	RICE UNIVERSITY	Fallon, R. A.	MSFC	Margrave, J. L.	NAS 8-33199	4442
47	SAN JOSE STATE UNIV	Riccitiello, S. R.	ARC	Anderson, R. N.	NCC 2-3	1373
47	SAN JOSE STATE UNIV	Mansfield, J.	ARC	Holmstrom, F.	NCC 2-80	1385

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47	SAN JOSE STATE UNIV	Nelson, H. G.	ARC	Clements, L.	NCC 2-137	1392
47	SAN JOSE STATE UNIV	Nelson, H. G.	ARC	Pizzo, P. P.	NCC 2-155	1396
47	SAN JOSE STATE UNIV	Riccitiello, S. R.	ARC	Anderson, R. N.	NCC 2-195	1402
47	STANFORD UNIVERSITY	Nelson, H. G.	ARC	Heinemann, K.	NCC 2-103	1524
47	STANFORD UNIVERSITY	Whittenberger, J. D.	LERC	Nix, W. D.	NAG 3-248	1437
47	STANFORD UNIVERSITY	Fogle, V.	MSFC	Ferguson, R. S.	NAS 8-34872	1477
47	STANFORD UNIVERSITY	Ambrus, J. H.	HQ-RT	Felgelson, R.	NAGW 268	1456
47	STATE U NY-STONY BRK	Miller, R. A.	LERC	Herman, H.	NAG 3-164	3786
47	TENNESSEE STATE UNIV	Young, S. G.	LERC	Chaudhuri, D. K.	NAG 3-125	4359
47	TEXAS A&M UNIVERSITY	Thompson, R. L.	LERC	Haisler, W. E.	NAG 3-31	4474
47	TEXAS A&M UNIVERSITY	Serafini, J. F.	LERC	Colaluca, M.	NAG 3-129	4475
47	TEXAS A&M UNIVERSITY	Whittenberger, J. D.	LERC	Wolfenden, A.	NAG 3-314	4481
47	UNIV ALA-HUNTSVILLE	Whitaker, A. F.	MSFC	Davis, J. H.	NAS 8-33377	1040
47	UNIV ALA-HUNTSVILLE	Bass, B. G.	MSFC	Hendriks, J. B.	NAS 8-33542	1044
47	UNIV ALA-HUNTSVILLE	Rathz, L. L.	MSFC	Davis, J. H.	NAS 8-33548	1045
47	UNIV ALA-HUNTSVILLE	Clure, J. C.	MSFC	Davis, J. H.	NAS 8-33810	1049
47	UNIV ALA-HUNTSVILLE	McClure, J. C.	MSFC	Davis, J. H.	NAS 8-33811	1050
47	UNIV ALA-HUNTSVILLE	Whitaker, A. F.	MSFC	Wagner, P. E.	NAS 8-34338	1059
47	UNIV ALA-UNIVERSITY	Reeves, F. A.	MSFC	Stefanescu, D. M.	NAS 8-34724	1076
47	UNIV OF ARIZONA	Ensign, C. R.	LERC	Wirsching, P. H.	NAG 3-41	1134
47	UNIV CALIF-L ANGELES	Barranger, J. P.	LERC	MacKengie, J. D.	NAG 3-69	1705
47	UNIV CALIF-L ANGELES	Barranger, J. P.	LERC	McKenzie, J. D.	NAG 3-295	1707
47	UNIV CALIF-S BARBARA	Nelson, H. G.	ARC	Shanabarger, M. R.	NCC 2-63	1902
47	UNIV OF CENTRAL FLA	Bianca, C.	MSFC	Carroll, W. E.	NAS 8-32835	2261
47	UNIV OF CINCINNATI	Hirschberg, M. H.	LERC	Antolovich, S. D.	NSG 3263	4075
47	UNIV OF CONNECTICUT	Stephens, J. R.	LERC	Nowotny, H.	NAG 3-271	2132
47	UNIV OF DAYTON	Gourash, F.	LERC	Strnat, K. J.	DEN 3-189	4077
47	UNIV OF DAYTON	Lark, R. L.	LERC	Emery, S. A.	DEN 3-286	4078
47	UNIV OF DAYTON	Orange, T. W.	LERC	Gallagher, J. P.	NAG 3-246	4081
47	UNIV OF DAYTON	McDaniels, D. L.	LERC	Bless, S. J.	NAS 3-22353	4083
47	UNIV OF FLORIDA	Outlaw, R. A.	LARC	Holloway, P. H.	NAG 1-154	2269
47	UNIV OF FLORIDA	Dutta, S.	LERC	Hench, L. L.	NSG 3254	2299
47	UNIV HOUSTON-HOUSTON	Viegas, J. R.	ARC	Hussain, A. K.	NSG 2337	4558
47	UNIV ILLINOIS-URBANA	Johnston, N. J.	LARC	Wang, S. S.	NAG 1-286	2513
47	UNIV ILLINOIS-URBANA	Dreshfield, R. L.	LERC	Fraser, H. L.	NAG 3-325	2521
47	UNIV OF IOWA	Rummier, D. R.	LARC	Wu, H. C.	NSG 1499	2679
47	UNIV OF MIAMI	Lisagor, W. B.	LARC	Poteat, L. E.	NSG 1283	2319
47	UNIV MICH-ANN ARBOR	Clark, L. G.	LARC	Felbeck, D. K.	NAS 1-17008	3270
47	UNIV MICH-ANN ARBOR	Fichter, W. B.	LARC	Felbeck, D. K.	NGR 23-005-528	3312
47	UNIV MICH-ANN ARBOR	Lauver, R. W.	LERC	Yeh, G. S.	NSG 3192	3316
47	U MINN-MNPLS-ST PAUL	Card, M. F.	LARC	Plunkett, R.	NAG 1-99	3330
47	U MINN-MNPLS-ST PAUL	Elber, W.	LARC	Hsiao, C. C.	NAG 1-278	3332
47	UNIV ORGEON-HLTH CTR	Moore, W. W., Jr.	MSFC	Brooks, D. E.	NAS 8-33575	4168
47	UNIV OF PITTSBURGH	Kohl, F. J.	LERC	Birks, N.	NAG 3-44	4296
47	U PUERTO RICO-MAYAGZ	Goldberg, S. R.	HQ-LG	Sasscer, D. S.	NAGW 198	5143
47	UNIV OF SOUTHERN CAL	Conway, E. J.	LARC	Kroger, F. A.	NSG 1536	1997
47	UNIV OF TORONTO	Baker, D. J.	LARC	Schweikhard, W. G.	NSG 7409	5148
47	UNIV OF UTAH	Fripp, A. L.	LARC	Rosenberger, F. E.	NSG 1534	4699
47	UNIV OF VIRGINIA	Fripp, A. L.	LARC	Jesser, W. A.	NSG 1652	4875
47	UNIV OF VIRGINIA	Behrendt, D. R.	LERC	Wawner, F. E., Jr.	NSG 3242	4877
47	UNIV OF WASHINGTON	Goldstein, H. E.	ARC	Mueller, J. I.	NAG 2-120	4988
47	UNIV OF WASHINGTON	Bersch, C. F.	HQ-RT	Mueller, J. I.	NAGW 199	5010
47	UNIV OF WASHINGTON	Bersch, C.	HQ-RT	Mueller, J. I.	NGL 48-002-004	5030
47	UNIV OF WYOMING	Johnston, N. J.	LARC	Adams, D. F.	NAG 1-277	5132
47	UNIV OF WYOMING	O'Brien, T. K.	LARC	Adams, D. F.	NAS 1-16557	5139
47	UNIV OF WYOMING	Dicarlo, J. A.	LERC	Adams, D. F.	NSG 3217	5142
47	VANDERBILT UNIVERSTY	Nichols, R. L.	MSFC	Kinsler, D. L.	NAS 8-32695	4394
47	VANDERBILT UNIVERSTY	Schaefer, D. A.	MSFC	Bayuzick, R. J.	NAS 8-34676	4396
47	VANDERBILT UNIVERSTY	Ethridge, E. C.	MSFC	Kinsler, D. L.	NAS 8-34963	4397
47	VIRGINIA POLY INST	Nelson, H. G.	ARC	Louthan, M. R.	NAG 2-3	4927

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47	VIRGINIA POLY INST	Nelson, H. G.	ARC	Brinson, H. F.	NCC 2-71	4955
47	VIRGINIA POLY INST	Johnston, N. J.	LARC	Wilkes, G. L.	NAG 1-78	4892
47	VIRGINIA POLY INST	Sykes, G. F.	LARC	McGrath, J. E.	NAG 1-106	4896
47	VIRGINIA POLY INST	Poe, C. C., Jr.	LARC	Morris, D. H.	NAG 1-264	4922
47	VIRGINIA POLY INST	Tenney, D. R.	LARC	Brown, J. J.	NCC 1-62	4952
47	VIRGINIA POLY INST	Tenney, D. R.	LARC	Houska, C. R.	NSG 1470	4966
47	VIRGINIA POLY INST	Baker, D. J.	LARC	Hyer, M. W.	NSG 1621	4971
47	VIRGINIA POLY INST	Vary, A.	LERC	Henneke, E. G.	NAG 3-172	4932
47	VIRGINIA POLY INST	Vary, A.	LERC	Henneke, E. G.	NAG 3-323	4936
47	YALE UNIVERSITY	Kohl, F. J.	LERC	Rosner, D. E.	NSG 3107	2150
49	CALIF INST OF TECH	Carter, C. H.	HQ-LB	Arbee, A. L.	NGT 05-003-790	1294
49	CAL POLY ST U-S LUIS	Saltzman, E. J.	DFRF	Sandlin, D. R.	NAG 4-7	1311
49	CASE WESTERN RESERVE	Meyer, G.	ARC	Martin, C.	NAG 2-82	3888
49	CASE WESTERN RESERVE	Doolin, B. F.	ARC	Martin, C.	NSG 2384	3946
49	CASE WESTERN RESERVE	Seasholtz, R. G.	LERC	Edwards, R. V.	NAG 3-2	3889
49	CASE WESTERN RESERVE	Sarsfield, L. P.	LERC	Ostrach, S.	NAG 3-243	3919
49	CASE WESTERN RESERVE	Seasholtz, R. G.	LERC	Edwards, R. V.	NAG 3-247	3920
49	CASE WESTERN RESERVE	Sapsfield, L. P.	LERC	Ostrach, S.	NAG 3-300	3931
49	CASE WESTERN RESERVE	Riley, T. J.	LERC	Mann, J. A.	NAS 3-22549	3939
49	CASE WESTERN RESERVE	Finnegan, P. M.	LERC	Dybbs, A.	NCC 3-8	3943
49	CASE WESTERN RESERVE	Carter, C. H.	HQ-LB	Prahl, J. M.	NGT 36-027-011	3945
49	CATHOLIC UNIVERSITY	Studer, P. A.	GSFC	Deshpande, M. D.	NAS 5-27343	2165
49	CLEVELAND STATE UNIV	Stenger, F. J.	LERC	Donoghue, J. F.	NAG 3-84	3957
49	COLLEGE OF WM & MARY	Finelli, G. B.	LARC	Schaefer, M. K.	NSG 1625	4748
49	COLUMBIA UNIVERSITY	Stephens, D. G.	LARC	Galanter, E.	NSG 1550	3628
49	CORNELL UNIVERSITY	Bents, D. J.	LERC	Lewis, A.	NAG 3-293	3641
49	CUYAHOGA COMMUNITY C	Bailey, C. E.	LERC	Wieser, N.	NAG 3-313	3982
49	DE ANZA COLLEGE	Lum, H.	ARC	Frederick, V.	NCC 2-31	1333
49	DREXEL UNIVERSITY	Meyer, G.	ARC	Calise, A. J.	NAG 2-8	4185
49	DREXEL UNIVERSITY	Baucom, R. M.	LARC	Rogers, V. A.	NAG 1-247	4184
49	DUKE UNIVERSITY	Hayduk, R. J.	LARC	Melosh, R. J.	NSG 1647	3842
49	FORT LEWIS COLLEGE	Kruger, R.	GSFC	Williams, R. E.	NAG 5-1	2035
49	GEORGE WASHINGTON U	Morakis, J. C.	GSFC	Helgert, H. J.	NSG 5109	2201
49	GEORGE WASHINGTON U	Wolfer, B.	JSC	Logsdon, J.	NAS 9-16461	2184
49	GEORGE WASHINGTON U	Carter, C. H.	HQ-LB	Silverman, B. G.	NGT 09-010-800	2197
49	GEORGIA INST OF TECH	Palmer, E. A.	ARC	Rouse, W. B.	NAG 2-123	2338
49	GEORGIA INST OF TECH	Webbon, B. W.	ARC	Olson, L. H.	NAG 2-135	2339
49	GEORGIA INST OF TECH	Vykukal, H. C.	ARC	Olson, L. H.	NCC 2-119	2372
49	GEORGIA INST OF TECH	Vykukal, H. C.	ARC	Olson, L. H.	NSG 2356	2379
49	HAMPTON INSTITUTE	Carter, C. H.	HQ-LB	Spencer, J. H.	NGT 47-020-800	4766
49	HOWARD UNIVERSITY	Mundy, J. R.	GSFC	Cox, E. L.	NCA 5-29	2223
49	HOWARD UNIVERSITY	Chapman, J. W.	GSFC	Cox, E. L.	NCA 5-91	2224
49	HOWARD UNIVERSITY	Mundy, J. R.	GSFC	Gill, T. L.	NGT 09-011-080	2226
49	HOWARD UNIVERSITY	Housner, J. M.	LARC	Broome, T. H., Jr.	NAG 1-290	2203
49	HOWARD UNIVERSITY	Hammer, H. A.	LARC	Bainum, P. M.	NSG 1414	2229
49	IOWA STATE UNIV	Pollack, J. B.	ARC	Iversen, J. D.	NCA 2-340802	2632
49	IOWA STATE UNIV	Anderson, M. S.	LARC	Lewin, W.	NSG 1372	2640
49	JOHNS HOPKINS UNIV	Degnan, J. J.	GSFC	Davidson, F.	NCC 5-24	2819
49	LAFAYETTE COLLEGE	Gainer, P. A.	LARC	Guy, W. J.	NAG 1-45	4206
49	LEHIGH UNIVERSITY	Chamis, C. C.	LERC	Sih, G. C.	NSG 3179	4216
49	LINCOLN UNIV-PA	Mundy, J. R.	GSFC	Williams, W. W.	NCA 5-98	4219
49	MASS INST OF TECH	Stewart, J. D.	ARC	Young, L. R.	NAG 2-12	3045
49	MASS INST OF TECH	Cicolani, L. S.	ARC	Holt, M.	NGL 22-009-124	3136
49	MASS INST OF TECH	Burkhart, J. A.	LERC	Marston, P. G.	NAG 3-100	3061
49	MASS INST OF TECH	Vento, D. M.	LERC	Wachman, H. Y.	NAG 3-173	3062
49	MASS INST OF TECH	Chamis, C. C.	LERC	McGarry, F. J.	NSG 3044	3164
49	MICHIGAN TECH UNIV	Meyer, G.	ARC	Millman, R. S.	NAG 2-140	3235
49	MORGAN STATE UNIV	Friedman, D. S.	GSFC	Taylor, J. H.	NAS 5-23558	2830
49	NEW MEX ST U-LAS CR	Pincus, B. R.	GSFC	Lawrence, H.	NAS 5-24241	3553
49	NEW MEX ST U-LAS CR	Pincus, B. R.	GSFC	Lawrence, H.	NAS 5-26332	3554

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	NEW YORK UNIVERSITY	Chai, A. T.	LERC	Ting, L.	NSG 3059	3707
49	NO CAR A&T STATE U	Carter, C. H.	HQ-LB	Abu-saba, E. G.	NGT 34-012-800	3849
49	OHIO STATE UNIV	Meyer, G.	ARC	Wyman, B.	NAG 2-34	3994
49	OHIO STATE UNIV	Bowles, K. J.	LERC	Smith, E. E.	NSG 3235	4030
49	OKLAHOMA STATE UNIV	Boykin, F. M.	GSFC	Fike, R. M.	NAS 6-3103	4121
49	OKLAHOMA STATE UNIV	Carr, R. E.	GSFC	Roth, L. O.	NSG 6018	4124
49	OLD DOMINION UNIV	Hamer, H. A.	LARC	Goglia, G. L.	NAG 1-102	4779
49	OLD DOMINION UNIV	Wieting, A. R.	LARC	Thornton, E. A.	NSG 1321	4822
49	OLD DOMINION UNIV	Carter, C. H.	HQ-LB	Goglia, G. L.	NGT 47-003-029	4883
49	OREGON STATE UNIV	Spera, D. A.	LERC	Thresher, R. W.	NAG 3-87	4145
49	PURDUE UNIVERSITY	Oseroff, H.	GSFC	Anuta, P. E.	NAS 5-26859	2590
49	ROCHESTER INST TECH	Oseroff, H.	GSFC	Schott, J. R.	NAS 5-27323	3752
49	SAN JOSE STATE UNIV	Mansfield, J. A.	ARC	Mayer, L. A.	NAG 2-99	1358
49	SAN JOSE STATE UNIV	Mansfield, J. A.	ARC	Ponds, J. W.	NCC 2-114	1388
49	SAN JOSE STATE UNIV	Mansfield, J. A.	ARC	Mayer, L. A.	NCC 2-165	1398
49	SOUTHEASTN OKLA ST U	Bivins, R. G.	HQ-ET	Oliver, R.	NASW 3180	4126
49	SOUTHERN METHODIST U	Moore, W. L.	MSFC	Crawford, G. W.	DEN 8-22	4462
49	STANFORD UNIVERSITY	Lum, H.	ARC	Harrison, D. C.	NCC 2-113	1527
49	STANFORD UNIVERSITY	Erzberger, H.	ARC	Bryson, A. E.	NGL 05-020-007	1539
49	STANFORD UNIVERSITY	Wolfe, J. H.	ARC	Peterson, A. M.	NSG 2121	1558
49	STANFORD UNIVERSITY	Carter, C. H.	HQ-LB	Bershader, D.	NGT 05-020-412	1552
49	STATE U NY-BINGHAMTN	Carter, C. H.	HQ-LB	Goel, N. S.	NGT 33-188-803	3780
49	TENNESSEE STATE UNIV	Pohly, J. G.	HQ-LC	Malkani, M. J.	NGT 43-014-750	4360
49	TEXAS A&M UNIVERSITY	Strouhal, G.	JSC	Porteiro, J. F.	NAS 9-16443	4509
49	TEXAS A&M UNIVERSITY	Smelser, J. W.	MSFC	Unavailable	NAS 8-34912	4499
49	TEXAS A&M UNIVERSITY	Carter, C. H.	HQ-LB	Horn, W. J.	NGT 44-001-800	4524
49	TEXAS TECH UNIV	Meyer, G.	ARC	Hunt, L. R.	NAG 2-189	4534
49	TUSKEGEE INSTITUTE	Pohly, J. G.	HQ-LC	Harris, G.	NGT 01-005-750	1025
49	UNIV OF AKRON	Hannum, N. P.	LERC	Braun, M. J.	NAG 3-304	4044
49	UNIV ALA-HUNTSVILLE	Carter, C. H.	HQ-LB	Karr, G. R.	NGT 01-008-021	1071
49	UNIV ALA-UNIVERSITY	Carter, C. H.	HQ-LB	Barfield, B. F.	NGT 01-002-099	1077
49	UNIV OF ARIZONA	Wagnon, F. W.	MSFC	Krider, P.	NAS 8-33718	1180
49	UNIV OF ARIZONA	Barnes, T. G.	MSFC	Wolfe, W. L.	NAS 8-33720	1181
49	UNIV CALIF-BERKELEY	Weinreb, M.	HQ-EZ	Bowyer, S.	NASW 3636	1621
49	UNIV CALIF-L ANGELES	Sobieski, J.	LARC	Schmit, L. A., Jr.	NSG 1490	1757
49	UNIV CALIF-SAN DIEGO	Davis, M. A.	GSFC	Whipple, E. C.	NAS 5-27248	1816
49	UNIV CALIF-SAN DIEGO	Gordon, P. G.	HQ-EN	Arnold, J. R.	NASW 3643	1826
49	UNIV CALIF-S BARBARA	Jones, H. W.	ARC	Estes, J. E.	NCC 2-43	1901
49	UNIV OF CENTRAL FLA	Reuterskiold, G.	KSC	Hancock, O. G., Jr.	NAS10-10544	2265
49	UNIV OF CINCINNATI	Mikulas, M. M., Jr.	LARC	Nayfeh, A. H.	NSG 1185	4069
49	UNIV OF CONNECTICUT	Kaufman, A.	LERC	Jordan, E. H.	NAG 3-160	2131
49	UNIV OF FLORIDA	Nelsen, E. D.	GSFC	Green, A. E.	NAS 5-22908	2280
49	UNIV HOUSTON-HOUSTON	Carter, C. H.	HQ-LB	Huang, C. J.	NGT 44-005-115	4553
49	UNIV ILLINOIS-CHICGO	Pollack, J. B.	ARC	Cogley, A. C.	NCA 2-330101	2509
49	UNIV OF KANSAS	Saltzman, E. J.	DFRF	Muirhead, V. U.	NAG 4-8	2700
49	UNIV OF KANSAS	Childress, O. S.	LARC	Smith, H. W.	NAG 1-147	2689
49	UNIV MARYLAND-COL PK	Degnan, J.	GSFC	Hochuli, U. E.	NAG 5-263	2863
49	UNIV MARYLAND-COL PK	Greene, E. P.	GSFC	Roussopoulos, N.	NAS 5-26810	2893
49	UNIV MARYLAND-COL PK	Chapman, J. W.	GSFC	Newton, J. W.	NCA 5-28	2905
49	UNIV MARYLAND-COL PK	McGarry, F. E.	GSFC	Basili, V. R.	NSG 5123	2941
49	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-LB	Emad, F. P.	NGT 21-002-254	2920
49	UNIV MICH-ANN ARBOR	Mah, R. W.	ARC	Anderson, D. J.	NAS 2-11225	3275
49	UNIV OF NEW MEXICO	Pohly, J. G.	HQ-LC	Robertson, M.	NGT 32-004-770	3573
49	UNIV OF NOTRE DAME	Meyer, G.	ARC	Sain, M. K.	NAG 2-35	2614
49	U PUERTO RICO-MAYAGZ	Marcus, C. H.	GSFC	Cabassa, H. D.	NAS 5-25844	5144
49	UNIV OF RHODE ISLAND	Meintel, A. J.	LARC	Dally, J. W.	NAG 1-173	4331
49	UNIV OF SANTA CLARA	Grant, T. L.	ARC	Healy, T. J.	NCC 2-128	1964
49	UNIV OF SANTA CLARA	Carter, C. H.	HQ-LB	Healy, T. J.	NGT 05-017-998	1970
49	UNIV STHN COLORADO	Webster, L.	ARC	Dunn, W. R.	NCC 2-91	2126
49	UNIV SO MISSISSIPPI	Whitley, S. L.	NSTL	Brundage, W. G.	NAS13-95	3383

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49	UNIV TENNESSEE-KNOXV	Reynolds, E. A.	KSC	Speckhart, F. H.	NAS10-9834	4380
49	UNIV TENNESSEE-KNOXV	Carter, C. H.	HQ-LB	Antar, B. N.	NGT 43-001-802	4385
49	UNIV TEXAS-ARLINGTON	Smith, J. M.	LERC	Wilson, D. R.	NSG 3255	4566
49	UNIV TEXAS-AUSTIN	Richard, R. R.	JSC	Hartwig, W. H.	NAS 9-14491	4594
49	UNIV TEXAS-AUSTIN	Pels, G. F.	JSC	Tucker, A. J.	NAS 9-15217	4595
49	UNIV TEXAS-AUSTIN	Kiefling, L. A.	MSFC	Craig, R. C.	NAS 8-33980	4592
49	UNIV OF TOLEDO	Savino, J. M.	LERC	Keith, T. G., Jr.	NCC 3-5	4103
49	UNIV OF VIRGINIA	Lamb, G. M.	GSFC	Mattauch, R. J.	NAS 5-24218	4863
49	UNIV OF VIRGINIA	Storaasli, O. O.	LARC	Ortega, J. M.	NAG 1-46	4841
49	UNIV OF WASHINGTON	Greenshields, D.	HQ-MR	Mueller, J. I.	NAGW 281	5012
49	UNIV WISC-MADISON	Carter, C. H.	HQ-LB	Kiefer, R. W.	NGT 50-002-800	5122
49	VIRGINIA POLY INST	Davis, J. G., Jr.	LARC	Herakovich, C. T.	NAG 1-128	4900
49	VIRGINIA POLY INST	Hayduk, R. J.	LARC	Kamat, M. P.	NAG 1-139	4902
49	VIRGINIA POLY INST	Davis, J. G., Jr.	LARC	Ingram, J.	NCC 1-15	4950
51	ALABAMA A&M UNIV	Snyder, R. S.	MSFC	Sharma, G. C.	NSG 8067	1007
51	ALCORN STATE UNIV	Wolverton, B. C.	NSTL	Latif, A.	NSG 8036	3359
51	AMHERST COLLEGE	Mandel, A. D.	ARC	Goldsby, R. A.	NAG 2-180	2967
51	BAYLOR COL OF MED	Ferandin, J.	ARC	Dunn, C. D.	NAS 2-10801	4404
51	BAYLOR COL OF MED	Halstead, T. W.	HQ-EB	Dunn, C. D.	NAGW 308	4402
51	BOSTON UNIVERSITY	Devincenzi, D. L.	HQ-EB	Campbell, S. E.	NAGW 141	2977
51	BROOKLYN COLLEGE	Miquel, J.	ARC	Cottrell, S. F.	NCA 2-75201	3576
51	CALIF INST OF TECH	MacElroy, R. D.	ARC	Stephanoploulos A, G. N.	NCC 2-122	1279
51	CAL STATE U-L ANGLES	Hochstein, L. I.	ARC	Yavarkovsky, J. H.	NSG 2199	1328
51	CASE WESTERN RESERVE	Halstead, T. W.	HQ-EB	Keefe, J. R.	NAGW 83	3935
51	COLORADO STATE UNIV	Souza, K. A.	ARC	Baker, R.	NAS 2-10151	2020
51	COLUMBIA UNIVERSITY	Holton, E. M.	ARC	Doty, S. B.	NCA 2-172101	3620
51	COLUMBIA UNIVERSITY	Halstead, T. W.	HQ-EB	Doty, S. B.	NAGW 238	3608
51	COLUMBIA UNIVERSITY	Halstead, T. W.	HQ-EB	Wolgemuth, D. J.	NAGW 346	3609
51	CORNELL UNIVERSITY	Halstead, T. W.	HQ-EB	Leopold, A. C.	NAGW 3	3645
51	CORNELL UNIVERSITY	Devincenzi, D. L.	HQ-EB	Gibson, J.	NSG 7529	3681
51	EMORY UNIVERSITY	Holton, E. M.	ARC	Popovic, V. P.	NAG 2-87	2327
51	EMORY UNIVERSITY	Gomersall, E. W.	ARC	Popovic, V. P.	NAS 2-10527	2328
51	EMORY UNIVERSITY	Holton, E. M.	ARC	Popovic, V. P.	NGL 11-001-009	2330
51	FLORIDA A&M UNIV	Winget, C. M.	ARC	Walker, C. A.	NAG 2-81	2241
51	FLORIDA STATE UNIV	Wydeven, T.	ARC	White, R. C.	NAG 2-149	2248
51	GEORGIA INST OF TECH	Hines, J. W., Jr.	ARC	Perry, K. R.	NCA 2-260101	2369
51	HAHNEMANN MED COL	Mehler, W. R.	ARC	Rubertone, J. A.	NCA 2-270201	4204
51	HARDIN-SIMMONS UNIV	Devincenzi, D. L.	HQ-EB	Foster, T. L.	NGR 44-095-001	4419
51	HARVARD UNIVERSITY	Ferandin, J.	ARC	Moore-edde, M. C.	NAS 2-10547	3004
51	HARVARD UNIVERSITY	Lauber, J. K.	ARC	Gander, P. H.	NCA 2-284101	3015
51	INDIANA U-BLOOMINGTN	Halstead, T. W.	HQ-EB	Malacinski, G. M.	NAGW 60	2555
51	JOHNS HOPKINS UNIV	Logan, J.	JSC	Fortney, S. M.	NAS 9-16703	2818
51	KENYON COLLEGE	Halstead, T. W.	HQ-EB	Edwards, K. L.	NAGW 368	3987
51	LOYOLA UNIV-CHICAGO	Halstead, T. W.	HQ-EB	Hayes, A. B.	NAGW 131	2444
51	MASS INST OF TECH	Daunton, N. G.	ARC	Young, L. R.	NAG 2-88	3048
51	MASS INST OF TECH	Daunton, N. G.	ARC	Bizzi, E.	NAG 2-126	3054
51	MASS INST OF TECH	MacElroy, R. D.	ARC	Rich, A.	NCA 2-425801	3129
51	MASS INST OF TECH	Devincenzi, D. L.	HQ-EB	Biemann, K.	NGR 22-009-005	3141
51	MED COL OF WISC	Kennard, J.	ARC	Riley, D. A.	NAS 2-11305	5064
51	MICHIGAN STATE UNIV	Halstead, T. W.	HQ-EB	Bandurski, R. S.	NAGW 97	3230
51	NO CAR A&T STATE U	Lum, H.	ARC	Ahrens, S. T.	NCA 2-545201	3847
51	NORTHWESTERN UNIV	Rambler, M.	HQ-EB	Lerman, A.	NAGW 339	2456
51	OHIO STATE UNIV	Mehler, W. R.	ARC	Lim, D. J.	NSG 2220	4027
51	OHIO STATE UNIV	Halstead, T. W.	HQ-EB	Vans, M. E.	NAGW 297	4007
51	OKLAHOMA STATE UNIV	Geib, D. S.	HQ-EB	Vishniac, H. S.	NAGW 26	4119
51	PA ST U-HERSHEY MED	Keil, L.	ARC	Severs, W. B.	NCC 2-127	4220
51	PENN STATE U-UNIV PK	Grindeland, R.	ARC	Hymer, W.	NCA 2-589101	4259
51	PENN STATE U-UNIV PK	Morrison, D. R.	JSC	Humen, W. C.	NAS 9-15566	4256
51	PENN STATE U-UNIV PK	Morrison, D.	JSC	Todd, P. W.	NAS 9-15584	4257
51	PRINCETON UNIVERSITY	Halstead, T. W.	HQ-EB	Jacobs, W. P.	NSG 7280	3532

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51	PURDUE UNIVERSITY	Ferandin, J.	ARC	Mitchell, C. A.	NAS 2-10514	2587
51	PURDUE UNIVERSITY	Halstead, T. W.	HQ-EB	Mitchell, C. A.	NSG 7278	2613
51	RICE UNIVERSITY	Fernandin, J. A.	ARC	Campbell, J.	NAS 2-10519	4440
51	ROCKEFELLER UNIV	Daunton, N. G.	ARC	Miller, A. D.	NAG 2-164	3753
51	ROCKEFELLER UNIV	MacElroy, R. D.	ARC	Loew, G. H.	NCA 2-630001	3755
51	ROCKEFELLER UNIV	Daunton, N. G.	ARC	Wilson, V. J.	NSG 2380	3757
51	ROCKEFELLER UNIV	Devincenzi, D. L.	HQ-EB	Mercer-smith, J. A.	NAGW 321	3754
51	SAN DIEGO STATE UNIV	Halstead, T. W.	HQ-EB	Rayle, D.	NAGW 230	1343
51	SAN FRAN STATE UNIV	Greenleaf, J. E.	ARC	Barnes, P. R.	NCA 2-660103	1351
51	SAN FRAN STATE UNIV	Oyama, J.	ARC	Kakihana, R.	NCC 2-25	1353
51	SAN FRAN STATE UNIV	Devincenzi, D. L.	HQ-EB	Orenberg, J. B.	NSG 7512	1355
51	SAN JOSE STATE UNIV	Daunton, N. G.	ARC	Ginsberg, R.	NCA 2-675002	1360
51	SAN JOSE STATE UNIV	Woeller, F. H.	ARC	Ling, A. C.	NCA 2-675008	1364
51	SAN JOSE STATE UNIV	Klein, H. P.	ARC	Weaver, E. C.	NCA 2-675202	1370
51	SAN JOSE STATE UNIV	Deal, P. H.	ARC	Haight, R. D.	NCA 2-675907	1372
51	SAN JOSE STATE UNIV	Suri, K. P.	ARC	Fox, R. A.	NCC 2-72	1383
51	SAN JOSE STATE UNIV	Winget, C. M.	ARC	Holley, D. C.	NCC 2-141	1393
51	SAN JOSE STATE UNIV	Daunton, N. G.	ARC	Fox, R. A.	NCC 2-167	1399
51	SAN JOSE STATE UNIV	Deroshia, C. W.	ARC	Holley, D. C.	NCC 2-197	1403
51	SO ILL UNIV-CARBONDL	Devincenzi, D. L.	HQ-EB	Yopp, J. H.	NAGW 344	2465
51	STANFORD UNIVERSITY	Klein, H. P.	ARC	Pittendrigh, C. S.	NAG 2-122	1425
51	STANFORD UNIVERSITY	Holton, E.	ARC	Feldman, D.	NCA 2-745007	1482
51	STANFORD UNIVERSITY	Williams, B. A.	ARC	Heller, H. C.	NCA 2-745206	1496
51	STANFORD UNIVERSITY	Holton, E. M.	ARC	Feldman, D.	NCA 2-745208	1498
51	STANFORD UNIVERSITY	Goldwater, D.	ARC	Debusk, R. F.	NCA 2-745911	1500
51	STATE U NY-BINGHAMTN	Nolte, R. W.	JSC	Sulzman, F. M.	NAS 9-15975	3776
51	STATE U NY-BINGHAMTN	Carter, C. H.	HQ-LB	Sulzman, F. M.	NGT 33-188-800	3777
51	STATE U NY-STONY BRK	Souza, K. A.	ARC	Krikorian, A. D.	NAS 2-10150	3798
51	STATE U NY-STONY BRK	Ferandin, J.	ARC	Krikorian, A. D.	NAS 2-10520	3799
51	STATE U NY-STONY BRK	Halstead, T. W.	HQ-EB	Krikorian, A. D.	NSG 7270	3814
51	TEMPLE UNIVERSITY	Halstead, T. W.	HQ-EB	Finck, A.	NAGW 242	4283
51	TEXAS TECH UNIV	Carter, C. H.	HQ-LB	Hartman, H. B.	NGT 44-011-800	4536
51	TUFTS UNIVERSITY	MacElroy, R. D.	ARC	Weaver, D.	NCA 2-785201	3187
51	TULANE UNIVERSITY	MacElroy, R. D.	ARC	Johnson, E. J.	NCA 2-800001	2785
51	TUSKEGEE INSTITUTE	Klein, H. P.	ARC	Tolbert, M. E.	NAG 2-22	1019
51	U MD BALTO PROF SCHL	Ellis, S.	ARC	Max, S. R.	NAG 2-100	2835
51	UNIV ALA-HUNTSVILLE	Carter, C. H.	HQ-LB	Young, R. B.	NGT 01-002-803	1069
51	UNIV ALASKA-FAIRBNKS	MacElroy, R. D.	ARC	Bloom, A. J.	NCA 2-20902	1086
51	UNIV OF ARIZONA	Halstead, T. W.	HQ-EB	Tischler, M.	NAGW 227	1159
51	UNIV OF ARIZONA	Halstead, T. W.	HQ-EB	Stuart, D. G.	NAGW 338	1164
51	UNIV OF ARIZONA	Halstead, T. W.	HQ-EB	Tischler, M. E.	NAGW 357	1166
51	UNIV CALIF-BERKELEY	Ferandin, J. A.	ARC	Pace, N.	NAS 2-10504	1601
51	UNIV CALIF-BERKELEY	Souza, K.	ARC	Pace, N.	NAS 2-10658	1602
51	UNIV CALIF-BERKELEY	Klein, H. P.	ARC	Packer, L.	NCA 2-50002	1623
51	UNIV CALIF-BERKELEY	Souza, K. A.	ARC	Gerhart, J. C.	NCA 2-50205	1631
51	UNIV CALIF-BERKELEY	Devincenzi, D. L.	HQ-EB	Buchanan, B. B.	NAGW 211	1595
51	UNIV CALIF-BERKELEY	Halstead, T. W.	HQ-EB	Feldman, L. J.	NAGW 239	1596
51	UNIV CALIF-BERKELEY	Halstead, T. W.	HQ-EB	Pace, N.	NSG 7262	1667
51	UNIV CALIF-BERKELEY	Halstead, T. W.	HQ-EB	Pace, N.	NSG 7336	1668
51	UNIV CALIF-DAVIS	Winget, C. M.	ARC	Chapman, L. F.	NCA 2-180905	1679
51	UNIV CALIF-DAVIS	Halstead, T. W.	HQ-EB	Horowitz, J. M.	NSG 2234	1685
51	UNIV CALIF-DAVIS	Halstead, T. W.	HQ-EB	Abbott, U. K.	NSG 7493	1687
51	UNIV CALIF-IRVINE	Ellis, S.	ARC	Baldwin, K. M.	NAG 2-107	1689
51	UNIV CALIF-IRVINE	Ferandin, J. A.	ARC	Baldwin, K. M.	NAS 2-10522	1696
51	UNIV CALIF-IRVINE	Devincenzi, D. L.	HQ-EB	Lanyi, T. K.	NAGW 212	1695
51	UNIV CALIF-L ANGELES	Ellis, S.	ARC	Parlow, A.	NCA 2-390001	1738
51	UNIV CALIF-RIVERSIDE	Ferandin, J.	ARC	Fuller, C. A.	NAS 2-10536	1779
51	UNIV CALIF-RIVERSIDE	Halstead, T. W.	HQ-EB	Fuller, C. A.	NAGW 309	1778
51	UNIV CALIF-SAN DIEGO	Devincenzi, D. L.	HQ-EB	Nealson, K. H.	NAGW 73	1799
51	UNIV CALIF-SAN DIEGO	Devincenzi, D. L.	HQ-EB	Lewin, R. A.	NAGW 181	1801

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51	UNIV CALIF-SAN DIEGO	Devincenzi, D. L.	HQ-EB	Fahey, R. C.	NAGW 342	1805
51	UNIV CALIF-SAN FRAN	Souza, K. A.	ARC	Arnaud, C.	NAS 2-10164	1856
51	UNIV CALIF-SAN FRAN	Mehler, W. R.	ARC	Snyder, R. L.	NCA 2-665003	1863
51	UNIV CALIF-SAN FRAN	Callahan, P. X.	ARC	Cann, C. E.	NCA 2-665004	1864
51	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Reid, I. A.	NCA 2-665005	1865
51	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Ramsay, D. J.	NCA 2-665006	1866
51	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Cann, C. E.	NCA 2-665008	1868
51	UNIV CALIF-SAN FRAN	MacElroy, R. D.	ARC	Bhatnagar, R.	NCA 2-665101	1869
51	UNIV CALIF-SAN FRAN	Ellis, S.	ARC	Rosen, S. D.	NCA 2-665102	1870
51	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Reid, I. A.	NCA 2-665103	1871
51	UNIV CALIF-SAN FRAN	V-danellis, J.	ARC	Dallman, M. F.	NCA 2-665201	1872
51	UNIV CALIF-SAN FRAN	Callahan, P. X.	ARC	Cann, C.	NCA 2-665202	1873
51	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Reid, I. A.	NCA 2-665203	1874
51	UNIV CALIF-SAN FRAN	Ellis, S.	ARC	Rosen, S. D.	NCA 2-665903	1875
51	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Arnaud, C. D.	NCC 2-181	1882
51	UNIV CALIF-SAN FRAN	Halstead, T. W.	HQ-EB	Bikle, D. D.	NAGW 236	1853
51	UNIV CALIF-SAN FRAN	Halstead, T. W.	HQ-EB	Halloran, B.	NAGW 349	1855
51	UNIV CALIF-SAN FRAN	Devincenzi, D. L.	HQ-EB	Stoeckenius, W.	NSG 7151	1885
51	UNIV CALIF-SAN FRAN	Carter, C. H.	HQ-LB	Kuntz, I.	NGT 05-029-800	1884
51	UNIV CALIF-S BARBARA	Billingham, J.	ARC	Valentine, J. W.	NAG 2-73	1890
51	UNIV OF CHICAGO	Daunton, N. G.	ARC	Goldberg, J. M.	NAG 2-148	2469
51	UNIV OF CHICAGO	Daunton, N. G.	ARC	Goldberg, J. M.	NGR 14-001-225	2499
51	UNIV OF CHICAGO	Soffen, G. A.	HQ-EB	Fernandiz, H.	NSG 7303	2505
51	UNIV OF CONNECTICUT	Devincenzi, D. L.	HQ-EB	Leadbetter, E. R.	NSG 7450	2137
51	UNIV OF FLORIDA	Greenleaf, J. E.	ARC	Fregly, M. J.	NCA 2-240101	2289
51	UNIV HOUSTON-HOUSTON	Schneider, H. J.	JSC	Zlatkis, A.	NAS 9-15882	4548
51	UNIV HOUSTON-HOUSTON	Devincenzi, D. L.	HQ-EB	Fox, G. E.	NSG 7440	4559
51	UNIV HOUSTON-HOUSTON	Halstead, T. W.	HQ-EB	Cowles, J. R.	NSG 9042	4562
51	UNIV OF LOUISVILLE	Mandel, A. D.	ARC	Rubertone, J. A.	NCA 2-400101	2762
51	UNIV OF LOUISVILLE	Holton, E. M.	ARC	Musacchia, X. J.	NSG 2325	2763
51	UNIV OF LOUISVILLE	Halstead, T. W.	HQ-EB	Musacchia, X. J.	NAGW 70	2760
51	UNIV MARYLAND-COL PK	Scott, F. E.	MSFC	Colwell, R.	NAS 8-34429	2901
51	UNIV MD-EASTRN SHORE	Trafford, G. H.	GSFC	Albano, M.	NSG 6033	2964
51	UNIV MICH-ANN ARBOR	Ferandin, J. A.	ARC	Ross, M.	NAS 2-10535	3273
51	UNIV MICH-ANN ARBOR	Halstead, T. W.	HQ-EB	Nace, G. W.	NAGW 29	3262
51	UNIV MICH-ANN ARBOR	Halstead, T. W.	HQ-EB	Kaufman, P. B.	NAGW 34	3264
51	UNIV MICH-ANN ARBOR	Devincenzi, D. L.	HQ-EB	Rich, A.	NSG 7452	3321
51	UNIV MICH-ANN ARBOR	Halstead, T. W.	HQ-EB	Ross, M. D.	NSG 9047	3322
51	UNIV NEW HAMP-DURHAM	MacElroy, R. D.	ARC	Moore, B.	NCC 2-27	3478
51	UNIV NEW HAMP-DURHAM	MacElroy, R. D.	ARC	Moore, B., III	NCC 2-209	3479
51	UNIV NEW HAMP-DURHAM	MacElroy, R. D.	ARC	Averner, M. M.	NCC 2-210	3480
51	UNIV N CAR-CHPL HILL	Young, D.	ARC	Mgchanic, G.	NAG 2-181	3881
51	U OKLA-HLTH SCI CTR	Heinrich, M. R.	ARC	Stone, H. L.	NAS 2-10408	4130
51	U OKLA-HLTH SCI CTR	Ferandin, J.	ARC	Stone, H. L.	NAS 2-10526	4131
51	U OKLA-HLTH SCI CTR	Sandler, H.	ARC	Stone, H. L.	NCA 2-580101	4133
51	U OKLA-HLTH SCI CTR	Lucid, S. W.	JSC	Nordquist, R. E.	NAS 9-15994	4132
51	UNIV OKLAHOMA-NORMAN	Sandler, H.	ARC	Stone, H. L.	NCA 2-580901	4138
51	UNIV OF PACIFIC	Halstead, T. W.	HQ-EB	Roberts, W. E.	NAGW 356	1929
51	UNIV OF PENNSYLVANIA	Halstead, T. W.	HQ-EB	Brown, A. H.	NGR 39-010-149	4292
51	UNIV OF PITTSBURGH	Daunton, N. G.	ARC	Tomko, D. L.	NAG 2-155	4295
51	UNIV OF PITTSBURGH	Daunton, N. G.	ARC	Tomko, D. L.	NCA 2-592901	4304
51	UNIV OF ROCHESTER	Morrison, D. R.	JSC	Barlow, G. H.	NAS 9-16187	3832
51	UNIV SAN FRANCISCO	Kraft, L. M.	ARC	Benton, E. V.	NCA 2-670101	1940
51	UNIV SAN FRANCISCO	Young, D. R.	ARC	Furst, A.	NCA 2-670902	1941
51	UNIV SAN FRANCISCO	Kraft, L. M.	ARC	Benton, E. V.	NCC 2-47	1942
51	UNIV OF SANTA CLARA	Mandel, A. D.	ARC	Caren, L. D.	NCA 2-685002	1948
51	UNIV OF SANTA CLARA	Grindeland, R. E.	ARC	Fast, T.	NCA 2-685003	1949
51	UNIV OF SANTA CLARA	Hochstein, L. I.	ARC	Tomlinson, G. A.	NCA 2-685004	1950
51	UNIV OF SANTA CLARA	Grindeland, R. E.	ARC	East, T. N.	NCC 2-180	1968
51	UNIV OF SANTA CLARA	Devincenzi, D. L.	HQ-EB	Nealson, K. H.	NAGW 277	1947

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51	UNIV OF SOUTHERN CAL	Geib, D. S.	HQ-EB	Strehler, B. L.	NSG 7367	2002
51	UNIV TEXAS-AUSTIN	Halstead, T. W.	HQ-EB	Roux, S. J.	NASW 3663	4609
51	UNIV TEXAS-AUSTIN	Halstead, T.	HQ-EB	Roux, S. J.	NSG 7480	4626
51	U TEX MED BRANCH-GAL	Daunton, N. G.	ARC	Perachio, A. A.	NAG 2-26	4663
51	U TEX MED BRANCH-GAL	Davinton, N. G.	ARC	Corrgia, M. J.	NAG 2-186	4665
51	U TEX MED BRANCH-GAL	Ferandin, J.	ARC	Correia, M. J.	NAS 2-10502	4666
51	U TEX MED BRANCH-GAL	Carter, C. H.	HQ-LB	Correia, M. J.	NGT 44-088-800	4670
51	U TEX HLTH SC CTR-DA	Halstead, T. W.	HQ-EB	Templeton, G. H.	NAGW 140	4672
51	U TEX HLTH SC CTR-HU	Waligora, J.	JSC	Hills, B. A.	NAG 9-23	4675
51	U TEX HLTH SC CTR-HU	Smith, M.	JSC	Booth, F.	NAS 9-15388	4676
51	U TEX HLTH SC CTR-HU	Cintron-trevino, N.	JSC	Booth, F. W.	NAS 9-16478	4677
51	UNIV OF UTAH	Holton, E. M.	ARC	Jee, W. S.	NAG 2-108	4686
51	UNIV OF VIRGINIA	Holton, E. M.	ARC	Pitts, G. C.	NSG 2225	4876
51	UNIV OF VIRGINIA	Devincenzi, D. L.	HQ-EB	Kretsinger, R. H.	NAGW 352	4859
51	UNIV OF WASHINGTON	Ellis, S.	ARC	Ellis, S.	NAG 2-80	4987
51	UNIV WISC-MADISON	Young, D. R.	ARC	Deluca, H. F.	NAG 2-167	5070
51	UNIV OF WYOMING	MacElroy, D.	ARC	Middaugh, C.	NCA 2-880201	5141
51	UTAH STATE UNIV	Halstead, T. W.	HQ-EB	Salisbury, F. B.	NSG 7567	4724
51	WAKE FOREST UNIV	Ferandin, J.	ARC	Hutchins, P. M.	NAS 2-10523	3884
51	WAKE FOREST UNIV	Halstead, T. W.	HQ-EB	Jaffe, M. J.	NAGW 96	3883
51	WASHINGTON UNIVERSTY	Halstead, T. W.	HQ-EB	Simmons, D. J.	NAGW 301	3418
51	WRIGHT STATE UNIV	Daunton, N. G.	ARC	Crampton, G. H.	NCA 2-875002	4111
51	YALE UNIVERSITY	Halstead, T. W.	HQ-EB	Galston, A. W.	NSG 7290	2152
54	COLORADO STATE UNIV	Nachtwey, D. S.	JSC	Lett, J. T.	NAG 9-10	2016
54	COLORADO STATE UNIV	Carter, C. H.	HQ-LB	Smith, J. A.	NGT 06-002-800	2027
54	FLORIDA STATE UNIV	Devincenzi, D. L.	HQ-EB	Friedmann, E. I.	NSG 7337	2256
54	OREGON STATE UNIV	Nachtwey, D. S.	JSC	Worrest, R. C.	NAS 9-14860	4152
54	SAN JOSE STATE UNIV	Klein, H. P.	ARC	Weaver, E. C.	NCA 2-675003	1361
54	SAN JOSE STATE UNIV	Oyama, J.	ARC	Holley, D. C.	NCC 2-207	1404
54	STATE UNIV NY-ALBANY	Sauer, R.	JSC	Janauer, G. E.	NAS 9-16604	3767
54	STATE U NY-STONY BRK	Devincenzi, D. L.	HQ-EB	Slobodkin, L. B.	NAGW 144	3793
54	TEXAS A&M UNIVERSITY	Zill, L. P.	ARC	Fong, F.	NCC 2-102	4520
54	TUSKEGEE INSTITUTE	Philpott, D. E.	ARC	Sapp, W. J.	NCC 2-12	1024
54	UNIV CALIF-BERKELEY	MacElroy, R. D.	ARC	Packer, L.	NCA 2-50202	1628
54	UNIV CALIF-L ANGELES	Daunton, N. G.	ARC	Markham, C. H.	NGR 05-007-418	1756
54	UNIV CALIF-S BARBARA	MacElroy, R. D.	ARC	Botkin, D.	NCA 2-680101	1900
54	UNIV CALIF-S BARBARA	Rambler, M.	HQ-EB	Strahler, A. H.	NAGW 323	1896
54	UNIV CALIF-S BARBARA	Bredt, J. H.	HQ-EB	Botkin, D. B.	NASW 3392	1899
54	UNIV CALIF-S BARBARA	Hogg, H.	HQ-EL	Botkin, D. B.	NAGW 231	1894
54	UNIV MD-EASTRN SHORE	Trafford, G. H.	GSFC	Hung, Y. W.	NAG 6-4	2958
54	UNIV OF MIAMI	Fraser, R. S.	GSFC	Prospero, J. M.	NAS 5-26768	2311
54	UNIV OF SANTA CLARA	Deal, P. H.	ARC	Tomlinson, G. A.	NCA 2-685008	1953
54	UNIV OF SANTA CLARA	Hochstein, L. I.	ARC	Tomlinson, G. A.	NCA 2-685203	1957
54	UNIV OF SO FLORIDA	Billingham, J.	ARC	Briggs, J. C.	NAG 2-74	2322
54	UTAH STATE UNIV	Nachtwey, D. S.	JSC	Caldwell, M. M.	NAS 9-14871	4717
55	COLORADO STATE UNIV	Kimes, D.	GSFC	Smith, J. A.	NAG 5-276	2015
55	GEORGE WASHINGTON U	Choudhury, B.	GSFC	Lang, R. H.	NAG 5-265	2180
55	HUNTER COLLEGE	Kimes, D.	GSFC	Strahler, A. H.	NAG 5-273	3689
55	MASS INST OF TECH	Chang, A.	GSFC	Kong, J. A.	NAG 5-270	3087
55	NO CAROLINA STATE U	Zill, L. P.	ARC	Raper, C. D.	NCC 2-101	3874
55	PURDUE UNIVERSITY	Zill, L. P.	ARC	Mitchell, C. A.	NCC 2-100	2598
55	PURDUE UNIVERSITY	Deering, D.	GSFC	Vanderbilt, V. C.	NAG 5-269	2586
55	SO DAKOTA STATE UNIV	Salomonson, V. V.	GSFC	Harlan, C.	NAG 5-37	4351
55	STATE UNIV NY-ALBANY	Whitehead, V. S.	JSC	Duggin, M. J.	NAS 9-16514	3766
55	TEXAS A&M UNIVERSITY	Hancock, K. J.	JSC	Newton, R. W.	NAS 9-16369	4506
55	UNIV CALIF-BERKELEY	Bauer, E. H.	ARC	Colwell, R. N.	NCC 2-205	1644
55	UNIV CALIF-DAVIS	Zill, L. P.	ARC	Huffaker, R. C.	NCC 2-99	1682
55	UNIV OF KANSAS	Choudhury, B.	GSFC	Fung, A. K.	NAG 5-268	2703
55	UNIV OF KANSAS	Brakke, T.	GSFC	Moore, R. K.	NAG 5-271	2704
55	UNIV OF KANSAS	Schmugge, T.	GSFC	Ulaby, F. T.	NAG 5-272	2705

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55	UNIV MD-EASTRN SHORE	Pohly, J. G.	HQ-LC	Joshi, J. M.	NSG 7470	2866
55	UNIV NEBRASKA-LINCLN	Kimes, D.	GSFC	Norman, J. M.	NAG 5-277	3442
55	UNIV WISC-MADISON	Zill, L. P.	ARC	Tibbitts, T. W.	NCC 2-136	5115
55	UTAH STATE UNIV	Zill, L. P.	ARC	Salisbury, F. B.	NCC 2-139	4718
56	BAYLOR COL OF MED	Souza, K. A.	ARC	Matthews, J. L.	NAS 2-10354	4403
56	BAYLOR COL OF MED	Altchucer, S. I.	JSC	Suki, W.	NAS 9-13737	4405
56	BAYLOR COL OF MED	Rippstein, W. J.	JSC	Duncan, W. C.	NAS 9-14407	4406
56	BAYLOR COL OF MED	Homick, J. L.	JSC	Igaraski, M.	NAS 9-14546	4407
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Alfrey, C.	NAS 9-14662	4408
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Criswell, B. S.	NAS 9-15457	4409
56	BAYLOR COL OF MED	Leach, C. S.	JSC	Dunn, C. D.	NAS 9-16180	4413
56	BAYLOR COL OF MED	Pierson, D. L.	JSC	Knight, V.	NAS 9-16280	4414
56	BAYLOR COL OF MED	Cintron, N. M.	JSC	Diferrante, N.	NAS 9-16387	4416
56	BAYLOR COL OF MED	Smith, M.	JSC	Leblanc, A.	NAS 9-16442	4417
56	BAYLOR COL OF MED	Taylor, G. R.	JSC	Rich, R. R.	NAS 9-16754	4418
56	CASE WESTERN RESERVE	Kerslake, W. R.	LERC	Hottel, T.	NAG 3-115	3902
56	CASE WESTERN RESERVE	Weigand, A. J.	LERC	Gibbons, D. F.	NAS 3-22443	3938
56	CASE WESTERN RESERVE	Kerslake, W. R.	LERC	Gibbons, D. F.	NSG 3151	3949
56	CLEMSON UNIV-CLEMSON	Kerslake, W. R.	LERC	Vanrecum, A. F.	NAG 3-116	4338
56	COL MED & DENT-NJ	Sharp, J. C.	ARC	Natelson, B. H.	NCC 2-40	3486
56	COLUMBIA UNIVERSITY	Young, D. R.	ARC	Pawluk, R. J.	NCA 2-172102	3621
56	DREXEL UNIVERSITY	Altchuler, S. I.	JSC	Kamel, I. L.	NAS 9-15915	4196
56	FLORIDA A&M UNIV	Alterescu, S.	GSFC	Fresh, F. A.	NAS 5-25165	2242
56	HARVARD UNIVERSITY	Leach, C. S.	JSC	Hollenberg, N. K.	NAG 9-17	3000
56	HARVARD UNIVERSITY	Leach, C. S.	JSC	Moore-ede, M. C.	NSG 9054	3031
56	HOWARD UNIVERSITY	Alterescu, S.	GSFC	Chang, P.	NAS 5-23799	2218
56	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Ferguson, G. A.	NSG 5268	2232
56	INDIANA U-BLOOMINGTN	Greenleaf, J. E.	ARC	Elizondo, R.	NCA 2-335001	2559
56	LINCOLN UNIV-PA	Alterescu, S.	GSFC	Frankowsky, J. W.	NAS 5-23800	4218
56	LA STATE U-SHREVEPT	Altchuler, S. I.	JSC	Albright, J. A.	NAS 9-15950	2774
56	LA STATE U-SHREVEPT	Homick, J. L.	JSC	Wood, C. D.	NAS 9-16477	2775
56	MASS INST OF TECH	Mehler, W. R.	ARC	Graybiel, A. M.	NAG 2-124	3053
56	MASS INST OF TECH	Winget, C. M.	ARC	DeLoatch, E. M.	NGR 22-009-627	3144
56	MASS INST OF TECH	Homick, J. L.	JSC	Oman, C. M.	NCC 9-1	3134
56	MASS INST OF TECH	Craemer, D. B.	HQ-EB	Young, L. R.	NASW 3651	3127
56	MED COL OF WISC	Ellis, S.	ARC	Riley, D. A.	NCA 2-432201	5085
56	MEHARRY MEDICAL COL	Alterescu, S.	GSFC	Braun, G.	NAS 5-23801	4357
56	MOREHOUSE COLLEGE	Alterescu, S.	GSFC	Barreras, R. J.	NAS 5-23571	2388
56	QUEENSBOROUGH COMM C	Goldwater, D.	ARC	Yuster, R.	NCA 2-625902	3722
56	SO UNIV & A&M COL-BR	Sandler, H.	ARC	Ray, G.	NCC 2-33	2783
56	STANFORD UNIVERSITY	Young, D. R.	ARC	Steele, C. R.	NAG 2-130	1427
56	STANFORD UNIVERSITY	Holton, E. M.	ARC	Feldman, D.	NCA 2-745107	1490
56	STANFORD UNIVERSITY	Goldwater, D.	ARC	Debusk, R. F.	NCA 2-745108	1491
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Popp, R.	NCC 2-1	1501
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Meindl, J. D.	NCC 2-38	1507
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-51	1511
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-52	1512
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Miller, H.	NCC 2-70	1516
56	STANFORD UNIVERSITY	Young, D. R.	ARC	Steele, C.	NCC 2-145	1532
56	STANFORD UNIVERSITY	Keil, L. C.	ARC	Luetscher, J. A.	NGR 05-020-456	1547
56	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NGR 05-020-634	1549
56	STATE U NY-BINGHAMTN	Carter, C. H.	HQ-LB	Jensen, R. A.	NGT 33-188-801	3778
56	ST U NY-UPST MED CTR	Leon, H. A.	ARC	Landaw, S. A.	NCA 2-765001	3820
56	TEMPLE UNIVERSITY	Nachtwey, D. S.	JSC	Urback, F.	NAS 9-14979	4284
56	TEXAS A&M UNIVERSITY	Barnes, C. M.	JSC	Hightower, D.	NAS 9-16375	4507
56	TEXAS TECH UNIV	Holton, E. M.	ARC	Kenny, A. D.	NSG 2137	4537
56	TUFTS UNIVERSITY	Trevino, N. C.	JSC	Lanyon, L.	NAG 9-25	3186
56	TULANE UNIVERSITY	Mehler, W. R.	ARC	Brizzee, K. R.	NAG 2-101	2784
56	UNIV OF ARIZONA	Mandel, A. D.	ARC	Meinke, W. J.	NSG 2381	1204
56	UNIV OF ARIZONA	Taylor, G. R.	JSC	Criswell, B. S.	NAS 9-16268	1184

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
56	UNIV CALIF-BERKELEY	Golub, M. A.	ARC	Timiras, P. S.	NCC 2-187	1643
56	UNIV CALIF-DAVIS	Carter, C. H.	HQ-LB	Horowitz, J. M.	NGT 05-004-800	1684
56	UNIV CALIF-IRVINE	Mandel, A. D.	ARC	Tilles, J. G.	NGR 05-041-012	1697
56	UNIV CALIF-SAN DIEGO	Horrigan, D. J.	JSC	West, J. B.	NSG 9075	1852
56	UNIV CALIF-SAN FRAN	Cowings, P. S.	ARC	Kamiya, J.	NCA 2-665002	1862
56	UNIV CALIF-SAN FRAN	Sandler, H.	ARC	Glantz, S. A.	NCA 2-665905	1877
56	UNIV CALIF-SAN FRAN	Philpott, D. E.	ARC	Arnaud, C. D.	NCA 2-665906	1878
56	UNIV CALIF-SAN FRAN	Philpott, D. E.	ARC	Strewler, G. J.	NCC 2-162	1880
56	UNIV CALIF-SAN FRAN	Holton, E. M.	ARC	Cann, C. E.	NCC 2-178	1881
56	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Ramsay, D. J.	NCC 2-194	1883
56	UNIV CALIF-SAN FRAN	Altchuler, S. I.	JSC	Genant, H. K.	NAS 9-15887	1858
56	UNIV CALIF-SAN FRAN	Altchuler, S. I.	JSC	Arnaud, C.	NAS 9-16027	1859
56	UNIV OF FLORIDA	Buchanan, P.	KSC	Grimes, R. R.	NAG10-4	2277
56	UNIV OF FLORIDA	Kerslake, W. R.	LERC	Hench, L. L.	NSG 3273	2300
56	UNIV HOUSTON-CL LAKE	Bungo, M.	JSC	Coleman, A. E.	NAS 9-16136	4563
56	UNIV OF KENTUCKY	Sandler, H.	ARC	Knapp, C. F.	NSG 2318	2758
56	UNIV OF KENTUCKY	Booher, C. R.	JSC	Bhagat, P. K.	NAS 9-15452	2754
56	UNIV MARYLAND-COL PK	Mandel, A. D.	ARC	Goldsby, R. A.	NSG 2378	2940
56	UNIV MD-EASTRN SHORE	Alterescu, S.	GSFC	Chapin, E. W.	NAS 5-26464	2961
56	UNIV OF MIAMI	Huntoon, C. L.	JSC	Epstein, M.	NAS 9-15473	2313
56	UNIV MICH-ANN ARBOR	Homick, J. L.	JSC	Anderson, D. J.	NAS 9-15244	3303
56	U OKLA-HLTH SCI CTR	Lucid, S.	JSC	Nordquist, R.	NAG 9-18	4129
56	UNIV SAN FRANCISCO	Young, D. R.	ARC	Brown, R. J.	NCC 2-135	1944
56	UNIV SAN FRANCISCO	Richmond, R. G.	JSC	Benton, E. V.	NAS 9-15152	1938
56	U TENNESSEE-MEMPHIS	Coleman, M. E.	JSC	Autian, J.	NAS 9-15670	4392
56	U TEX HLTH SC CTR-DA	Bungo, M.	JSC	Blomquist, C. G.	NSG 9026	4674
56	U TEX HLTH SC CTR-HU	Johnson, P.	JSC	Schneider, V. S.	NAS 9-16688	4678
56	UNIV TEX-BIOMED GRAD	Nicogossian, A. E.	HQ-EB	Key, M. M.	NGT 44-089-980	4629
56	U TEX HLTH SC CTR-SA	Leach, C. S.	JSC	George, J. N.	NAG 9-5	4679
56	U TEX HLTH SC CTR-SA	Leach, C. S.	JSC	Lifschitz, M.	NAS 9-16366	4680
56	UNIV WISC-MADISON	Young, D. R.	ARC	Mazess, R. B.	NAG 2-166	5069
56	UNIV WISC-MADISON	Young, D. R.	ARC	Mazess, R.	NAS 2-10359	5090
56	UNIV WISC-MADISON	Young, D. R.	ARC	Mazess, R. B.	NGR 50-002-051	5119
56	UNIV WISC-MADISON	Mandel, A. D.	ARC	Dick, E. C.	NSG 2104	5123
56	UNIV WISC-MADISON	Friedman, D. S.	GSFC	Siedbank, M. P.	NAS 5-24385	5093
56	UNIV WISC-MADISON	Friedman, D. S.	GSFC	Sieband, M. P.	NAS 5-26454	5105
56	UNIV WISC-MADISON	Cintron-trevino, N.	JSC	Schnoes, H. K.	NAS 9-15580	5113
56	VIRGINIA COMNWLTH U	Warner, J. L.	JSC	Eckberg, D. L.	NAG 9-14	4882
56	VIRGINIA COMNWLTH U	Hardin, J. C.	LARC	Patterson, J. L.	NAG 1-241	4881
56	VIRGINIA COMNWLTH U	Hardin, J. C.	LARC	Patterson, J. L.	NAS 1-16453	4883
56	YALE UNIVERSITY	Mandel, A. D.	ARC	Evans, A. S.	NSG 2185	2149
59	BAYLOR COL OF MED	Leach, C. S.	JSC	Suki, W. N.	NAS 9-15891	4410
59	BAYLOR COL OF MED	Thirolf, R. G.	JSC	Chriswell, B. S.	NAS 9-16029	4411
59	BAYLOR COL OF MED	Thirolf, R. G.	JSC	Martin, R. R.	NAS 9-16040	4412
59	BRANDEIS UNIVERSITY	Homick, J. L.	JSC	Lackner, J. R.	NAS 9-15147	2991
59	COLORADO STATE UNIV	Nachtwey, D. S.	JSC	Lett, J. T.	NSG 9045	2034
59	CORNELL UNIV-MED CTR	Sandler, H.	ARC	Reis, D. J.	NSG 2259	3687
59	EMORY UNIVERSITY	Goldsboro, J. A.	ARC	McClure, H. M.	NAS 2-10627	2329
59	FLORIDA A&M UNIV	Winget, C. M.	ARC	Walker, C. A.	NSG 2029	2243
59	FLORIDA A&M UNIV	Winget, C. M.	ARC	Soliman, K. F.	NSG 2183	2244
59	FLORIDA INST OF TECH	Huffman, W. O.	KSC	Nunn, W. M., Jr.	NAS10-10225	2247
59	GEORGE WASHINGTON U	Halstead, T. W.	HQ-EB	Waters, E., Jr.	NASW 3165	2185
59	GEORGIA INST OF TECH	Quattrone, P. D.	ARC	Winnick, J.	NAG 2-11	2337
59	GEORGIA INST OF TECH	Quattrone, P. D.	ARC	Carden, J. L.	NSG 2323	2378
59	HOWARD UNIVERSITY	Riser, W. T.	KSC	Wang, Y. C.	NAG10-2	2217
59	JOHNS HOPKINS UNIV	White, T.	JSC	Walker, W. G.	NAS 9-16030	2817
59	KENTUCKY STATE UNIV	Hoffler, G.	KSC	Kloek, G. P.	NAG10-5	2746
59	KENTUCKY STATE UNIV	Hoffler, G.	KSC	Kloek, G.	NSG 801	2747
59	LINCOLN UNIV-MO	Atwell, B. H.	NSTL	Molnar, I. G.	NAG13-1	3384
59	MARQUETTE UNIVERSITY	Smith, M. C., Jr.	JSC	Fitts, R. H.	NAS 9-15711	5063

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59	MASS INST OF TECH	Quattrone, P. D.	ARC	Reid, R. C.	NAG 2-90	3049
59	MASS INST OF TECH	Daunton, N. G.	ARC	Young, L. R.	NSG 2032	3158
59	MASS INST OF TECH	Wydeven, T.	ARC	Modell, M.	NSG 2403	3162
59	MASS INST OF TECH	Evans, J. S.	JSC	Young, L. R.	NAS 9-15349	3123
59	MASS INST OF TECH	Sauer, R. L.	JSC	Karel, M.	NAS 9-16008	3124
59	MASS INST OF TECH	Evans, J. S.	JSC	Young, L. R.	NAS 9-16523	3125
59	MIAMI UNIVERSITY	Homick, J. L.	JSC	Parker, D. E.	NAS 9-14538	3988
59	MIAMI UNIVERSITY	Evans, J. S.	JSC	Parker, D. E.	NAS 9-16051	3989
59	PRINCETON UNIVERSITY	Snyder, R. S.	MSFC	Saville, D. A.	NAS 8-32614	3516
59	PURDUE UNIVERSITY	Zill, P.	ARC	Hoff, J. E.	NSG 2401	2604
59	PURDUE UNIVERSITY	Zill, L. P.	ARC	Mitchell, C. A.	NSG 2404	2605
59	RUSH UNIVERSITY	Evans, J. S.	JSC	Gottlieb, G. L.	NAS 9-16035	2464
59	SAN FRAN STATE UNIV	Billingham, J.	ARC	Seeger, C. L.	NCC 2-32	1354
59	SAN JOSE STATE UNIV	Deal, P. H.	ARC	Holley, D. C.	NCA 2-675103	1368
59	SAN JOSE STATE UNIV	Curry, R.	ARC	Plant, W. T.	NCC 2-34	1377
59	SAN JOSE STATE UNIV	Winget, C. M.	ARC	Holley, D. C.	NCC 2-116	1389
59	SO DAKOTA SCHL MINES	French, B.	JSC	Gowen, R. J.	NAS 9-16028	4350
59	STANFORD UNIVERSITY	Curry, R. E.	ARC	Thompson, D. A.	NAG 2-168	1429
59	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NCC 2-126	1530
59	STANFORD UNIVERSITY	Peck, E. E.	JSC	Popp, R. L.	NAS 9-16050	1478
59	STANFORD UNIVERSITY	Devincenzi, D. L.	HQ-EB	Bonner, W. A.	NGL 05-020-582	1545
59	STATE UNIV NY-ALBANY	Horrigan, D. J.	JSC	Farhi, L. E.	NAS 9-15802	3764
59	STATE UNIV NY-ALBANY	Williams, J. R.	MSFC	Van Oss, C. J.	NAS 8-32947	3762
59	STATE U NY-BINGHAMTN	Souza, K. A.	ARC	Sulzman, F. M.	NAS 2-10621	3775
59	STATE UNIV NY-BUFFAL	Peck, E. E.	JSC	Farhi, L.	NAS 9-16042	3783
59	ST U NY-DNST MED CTR	Ellis, S.	ARC	Etlinger, J. D.	NAG 2-162	3819
59	TULANE UNIVERSITY	Mehler, W. R.	ARC	Brizzee, K. R.	NSG 2139	2786
59	UNIV OF AKRON	French, B. O.	JSC	Herron, D. E.	NAS 9-16043	4047
59	UNIV OF ARIZONA	Snyder, R. S.	MSFC	Bartels, P. H.	NAS 8-31948	1178
59	UNIV OF ARIZONA	Moore, W. W., Jr.	MSFC	Bier, M.	NAS 8-32950	1179
59	UNIV OF ARIZONA	Tuyahov, H. J.	HQ-EL	Bier, M.	NSG 7333	1215
59	UNIV CALIF-L ANGELES	Sandler, H.	ARC	Bricker, N. S.	NCC 2-104	1743
59	UNIV CALIF-L ANGELES	French, B. O.	JSC	Wiberg, D. M.	NAS 9-16047	1737
59	UNIV CALIF-SAN DIEGO	Lintott, J.	JSC	Ryan, A. F.	NAS 9-16033	1822
59	UNIV CALIF-SAN DIEGO	McAllum, W. E.	JSC	West, J. B.	NAS 9-16037	1823
59	UNIV CALIF-SAN DIEGO	White, T.	JSC	Morgens, A. R.	NAS 9-16039	1824
59	UNIV CALIF-SAN DIEGO	Leach, C. S.	JSC	Ziegler, M. G.	NAS 9-16312	1825
59	UNIV CALIF-SAN FRAN	Souza, K.	ARC	Cann, C.	NAS 2-10927	1857
59	UNIV CALIF-SAN FRAN	White, T. T.	JSC	Searle, D. L.	NAS 9-16038	1860
59	UNIV CALIF-SAN FRAN	Newkirk, K. E.	JSC	Arnaud, C. D.	NAS 9-16227	1861
59	UNIV OF DENVER	Booher, C. R.	JSC	Sturm, R. E.	NAS 9-15991	2121
59	UNIV OF HAWAII-MANOA	Peck, E. E.	JSC	D'arriso, J. F.	NAS 9-16048	2416
59	UNIV HOUSTON-HOUSTON	Tremor, J. W.	ARC	Cowles, J. R.	NAS 2-10087	4544
59	UNIV HOUSTON-HOUSTON	Tremor, J. W.	ARC	Cowles, J. R.	NAS 2-11165	4545
59	UNIV HOUSTON-HOUSTON	Sauer, R. L.	JSC	Witte, L. C.	NAS 9-11676	4547
59	UNIV HOUSTON-HOUSTON	Carter, C. H.	HQ-LB	Fox, G. E.	NGT 44-005-801	4555
59	UNIV ILLINOIS-URBANA	Peck, E. E.	JSC	Voss, E. W.	NAS 9-15328	2534
59	UNIV OF KENTUCKY	Peck, E. E.	JSC	Bhattacharga, A.	NAS 9-16045	2755
59	UNIV OF MIAMI	Ellis, S.	ARC	Kerrick, W. G.	NAG 2-150	2303
59	UNIV MICH-ANN ARBOR	Tremor, J. W.	ARC	Nace, G. W.	NAS 2-10945	3274
59	UNIV MICH-ANN ARBOR	Reschke, M. F.	JSC	Anderson, D. J.	NAS 9-15375	3304
59	U OKLA-HLTH SCI CTR	Sandler, H.	ARC	Stone, H. L.	NCC 2-24	4134
59	UNIV OF PACIFIC	Holton, E. M.	ARC	Roberts, W. E.	NCA 2-588002	1931
59	UNIV OF PENNSYLVANIA	Peck, E. E.	JSC	Brown, A. H.	NAS 9-15531	4289
59	UNIV OF PENNSYLVANIA	McCullum, G.	JSC	Stein, T. D.	NAS 9-16031	4290
59	UNIV SAN FRANCISCO	Souza, K. A.	ARC	Benton, E. V.	NAS 2-10161	1935
59	UNIV SAN FRANCISCO	Klein, H. P.	ARC	Satyanarayana, T.	NCC 2-85	1943
59	U TEX MED BRANCH-GAL	Gomersall, E. W.	ARC	Fabricant, J. D.	NAG 2-183	4664
59	U TEX MED BRANCH-GAL	Leach, C. S.	JSC	Ziegler, M. G.	NAS 9-15565	4669
59	U TEX HLTH SC CTR-DA	Lintott, J.	JSC	Blomquist, C. G.	NAS 9-16044	4673

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59	VIRGINIA COMNWLTH U	Young, W. J.	JSC	Exkberg, D. L.	NAS 9-16046	4884
59	WASHINGTON UNIVERSITY	Souza, K. A.	ARC	Simmons, D. J.	NAS 2-10636	3419
59	WRIGHT STATE UNIV	Nicogossian, A. E.	HQ-EB	Mohler, S. R.	NGT 36-024-790	4113
61	MASS INST OF TECH	Patton, R. M.	ARC	Wurtman, R. J.	NAG 2-132	3055
61	SAN JOSE STATE UNIV	Daunton, N. G.	ARC	Fox, R. A.	NCA 2-675009	1365
61	STATE U NY-STONY BRK	Carter, C. H.	HQ-LC	Feldman, G. C.	NGT 33-015-802	3812
61	UNIV CALIF-DAVIS	Connors, M.	ARC	Harrison, A. A.	NCC 2-48	1681
61	UNIV CALIF-SAN FRAN	Cowings, P. S.	ARC	Kamiya, J.	NCC 2-115	1879
61	UNIV OF SANTA CLARA	Connors, M.	ARC	Akins, F. R.	NCC 2-49	1960
61	UNIV OF UTAH	Carter, C. H.	HQ-LB	Nielson, H. C.	NGT 45-003-800	4697
61	WRIGHT STATE UNIV	Daunton, N. G.	ARC	Crampton, G. H.	NCC 2-204	4112
62	JOHNS HOPKINS UNIV	Patton, R. M.	ARC	Brady, J. V.	NAG 2-139	2803
62	OHIO STATE UNIV	Foushee, H. C.	ARC	Jensen, R.	NCC 2-208	4019
62	OLD DOMINION UNIV	Carter, C. H.	HQ-LB	Coates, G. D.	NGT 47-003-801	4818
62	PURDUE UNIVERSITY	Patton, M.	ARC	Castore, C. H.	NCA 2-605001	2596
62	UNIV TEXAS-AUSTIN	Patton, R. M.	ARC	Helmreich, R. L.	NAG 2-137	4571
69	BOSTON UNIVERSITY	Powell, C. A.	LARC	Hellman, R. D.	NSG 1644	2987
69	MASS INST OF TECH	Remington, R. W.	ARC	Kenyon, R. V.	NAG 2-103	3050
69	OHIO STATE UNIV	Lauber, J. K.	ARC	Rockwell, T. H.	NAG 2-112	3995
69	OHIO STATE UNIV	Hartzell, E. J.	ARC	Miller, R. A.	NAG 2-195	3998
69	OHIO STATE UNIV	Dunn, R. S.	ARC	Jagacinski, R. J.	NSG 2179	4026
69	OLD DOMINION UNIV	Carter, C. H.	HQ-LB	Coates, G. D.	NGT 47-003-800	4817
69	SAN JOSE STATE UNIV	Nagel, D. C.	ARC	Regan, J. E.	NAG 2-84	1356
69	SAN JOSE STATE UNIV	Tanner, T. A.	ARC	Plant, W. T.	NCC 2-35	1378
69	SAN JOSE STATE UNIV	Hartzell, E. J.	ARC	Plant, W. T.	NCC 2-37	1379
69	STANFORD UNIVERSITY	Ahumada, A. J.	ARC	Karamcheti, K.	NCC 2-44	1508
69	STANFORD UNIVERSITY	Ahumada, A. J.	ARC	Karemcheti, K.	NCC 2-177	1535
69	STANFORD UNIVERSITY	Powell, C. A., Jr.	LARC	Karamcheti, K.	NAG 1-17	1407
69	TEXAS CHRISTIAN UNIV	Huff, E. M.	ARC	Arnoult, M. D.	NAG 2-69	4532
69	TEXAS CHRISTIAN UNIV	Powell, C. A.	LARC	Arnoult, M. D.	NAG 1-22	4531
69	TUFTS UNIVERSITY	Palmer, E. A.	ARC	Chechile, R. A.	NAG 2-51	3185
69	UNIV CALIF-SAN FRAN	Cowings, P. S.	ARC	Naifeh, K.	NCA 2-665007	1867
69	UNIV CALIF-SAN FRAN	Cowings, P. S.	ARC	Kamiya, J.	NCA 2-665904	1876
69	UNIV MARYLAND-COL PK	Menchen, D.	GSFC	Leibowitz, Z. B.	NAS 5-26448	2885
69	UNIV OF MIAMI	Curry, R. E.	ARC	Wiener, E. L.	NCC 2-152	2317
69	UNIV OF NEVADA-RENO	Hartzell, E. J.	ARC	Harrington, T. L.	NAG 2-196	3457
69	UNIV TEXAS-AUSTIN	Patton, R. M.	ARC	Helmreich, R. L.	NSG 2065	4616
69	U TEX MED BRANCH-GAL	Reschke, M. F.	JSC	Correia, M. J.	NAS 9-14641	4668
69	UNIV OF VIRGINIA	Deloach, R.	LARC	Cook, G.	NSG 1509	4873
72	OLD DOMINION UNIV	Batten, B. G.	LARC	Strangways, R. S.	NAG 1-66	4777
73	MASS INST OF TECH	Dietrich, J. W.	JSC	Uhlmann, D. R.	NAG 9-12	3089
73	TEXAS A&M UNIVERSITY	Rowsome, F.	HQ-NS	Nicks, O. W.	NASW 3557	4516
76	CAL STATE U-HAYWARD	Holley, H. L.	ARC	Huttman, E.	NCA 2-290101	1323
79	UNIV CALIF-BERKELEY	Tuyahov, A. J.	HQ-ET	Colwell, R. N.	NSG 7522	1670
79	UNIV MICH-ANN ARBOR	Clevenson, S.	LARC	Kalton, G.	NAS 1-16107	3269
79	UNIV MICH-ANN ARBOR	Marsik, S. J.	LERC	Roberts, A. F.	NAG 3-185	3250
79	WESTERN MICHIGAN U	Thorne, M. M.	HQ-LC	Lindbeck, J. R.	NASW 3544	3327
99	BOWIE STATE COLLEGE	Mundy, J.	GSFC	Kirksey, C. H.	NGT 21-027-012	2798
99	BOWIE STATE COLLEGE	Bailey, E.	GSFC	Kirksey, C. H.	NSG 5418	2800
99	CAL STATE U-CHICO	Bondurant, L.	LERC	Lewis, M. R.	NAS 3-22172	1317
99	ESTRN SHORE CMTY COL	Milliner, J. B.	GSFC	Layman, P.	NAS 6-2964	4752
99	GEORGIA INST OF TECH	Lee, R. B.	LARC	Sayle, W. E.	NAS 1-16845	2353
99	GEORGIA INST OF TECH	Lee, R. B.	LARC	Freeston, D. W.	NAS 1-17141	2354
99	HAMPTON INSTITUTE	Erickson, W. D.	LARC	Darden, G. C.	NAS 1-16455	4763
99	HARVARD UNIVERSITY	Clark, T.	GSFC	Lilley, A. E.	NAS 5-25677	3006
99	HOWARD UNIVERSITY	Carter, C. H.	HQ-LB	Fan, D. N.	NGT 09-011-060	2225
99	IMPERIAL C SCI & TEC	Povinelli, L. A.	LERC	Rackham, O.	NASW 3435	5152
99	MASS INST OF TECH	Gaskins, M. A.	HQ-E	Bridge, H. S.	NGL 22-009-638	3139
99	MORGAN STATE UNIV	Mundy, J. R.	GSFC	Proctor, N. K.	NGT 21-025-080	2831
99	NEW YORK UNIVERSITY	Roberson, F. I.	HQ-ET	Fusfeld, H. I.	NSG 7636	3710

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99	NORTHWESTERN UNIV	Graves, E. B.	LARC	Spencer, F. A.	NAG 1-180	2445
99	OHIO STATE UNIV	Hart, S. G.	ARC	Jensen, R. S.	NAG 2-184	3997
99	OKLAHOMA STATE UNIV	Graves, C. M.	HQ-LC	Wiggins, K.	NASW 3313	4122
99	OLD DOMINION UNIV	Huffman, J. P.	LARC	Stohrer, F. F.	NAS 1-16537	4800
99	PENN STATE U-UNIV PK	Labovitz, M. L.	GSFC	Turner, B. J.	NAS 5-26323	4245
99	PENN STATE U-UNIV PK	Dottavio, C. L.	GSFC	Turner, B. J.	NAS 5-26468	4247
99	PENN STATE U-UNIV PK	Labovitz, M. L.	GSFC	Turner, B.	NAS 5-26652	4250
99	PURDUE UNIVERSITY	Short, N. M.	GSFC	Davis, S. M.	NAS 5-26406	2589
99	PURDUE UNIVERSITY	Gordon, F.	GSFC	Landgrebe, D. A.	NSG 5414	2612
99	SAN FRAN STATE UNIV	Tomberlin, K. A.	ARC	Eisenberg, L.	NCA 2-660201	1352
99	SO DAKOTA STATE UNIV	Gordon, F., Jr.	GSFC	Moore, D.	NAS 5-24206	4352
99	SOUTHEASTN OKLA ST U	Bivins, R. G.	HQ-ET	Harmon, J.	NASW 3498	4127
99	SOUTHEASTN OKLA ST U	Bivins, R. G.	HQ-LG	Harmon, J.	NASW 3659	4128
99	TUFTS UNIVERSITY	Hart, S. G.	ARC	Kreifeldt, J. G.	NCC 2-93	3188
99	TUFTS UNIVERSITY	Wempe, T. E.	ARC	Kreifeldt, J. G.	NSG 2156	3189
99	UNIV OF AKRON	Glazer, J. H.	ARC	Desaussure, H.	NCA 2-5101	4048
99	UNIV CALIF-BERKELEY	Billingham, J.	ARC	Bowyer, C. S.	NCC 2-36	1633
99	UNIV CALIF-BERKELEY	Ellis, S. R.	ARC	Stark, L.	NCC 2-86	1636
99	UNIV CALIF-BERKELEY	Bollenbacher, G.	LERC	Sullivan, L. A.	NAG 3-111	1573
99	UNIV CALIF-BERKELEY	Gaskins, M. A.	HQ-E	Price, P. B.	NGL 05-003-497	1649
99	UNIV CALIF-HASTNGS C	Brekke, D. G.	ARC	Henke, D. F.	NCA 2-280001	1688
99	UNIV CALIF-L ANGELES	Dietrich, J. W.	JSC	Depaolo, D. J.	NAG 9-15	1712
99	UNIV CALIF-S BARBARA	Sinnott, D. B.	ARC	Estes, J. E.	NAG 2-121	1891
99	UNIV CALIF-S BARBARA	Carter, C. H.	HQ-LB	Estes, J. E.	NGT 05-010-802	1909
99	UNIV CALIF-S BARBARA	Carter, C. H.	HQ-LB	Ozier, J. D.	NGT 05-010-803	1910
99	UNIV OF CHICAGO	Gaskins, M. A.	HQ-E	Meyer, P.	NGL 14-001-258	2495
99	UNIV OF CHILE	Force, C. A.	GSFC	Diaz, E.	NAS 5-1925	5151
99	UNIV OF CONNECTICUT	Bivins, R. E.	HQ-ET	Wilde, D.	NASW 3191	2133
99	UNIV OF DENVER	Ault, L. A.	HQ-ET	Johnson, S. D.	NASW 3466	2122
99	UNIV HOUSTON-HOUSTON	Smith, M.	JSC	Bell, L.	NAS 9-15944	4549
99	UNIV HOUSTON-HOUSTON	Smith, M.	JSC	Rappole, C.	NAS 9-16593	4551
99	UNIV ILLINOIS-URBANA	Hart, S. G.	ARC	Wickens, C. D.	NAG 2-169	2517
99	UNIV ILLINOIS-URBANA	Palmer, E. A.	ARC	Rouse, W. B.	NSG 2119	2542
99	UNIV OF KENTUCKY	Harrison, J. O.	HQ-ET	Strong, F.	NASW 3367	2756
99	UNIV MARYLAND-COL PK	Truskowski, W.	GSFC	Rieger, C. S.	NAS 5-25764	2883
99	UNIV MD-EASTRN SHORE	Oberholtzer, J. D.	GSFC	Wutoh, J. G.	NAG 6-3	2957
99	UNIV MD-EASTRN SHORE	Foster, J. N.	GSFC	Smith, J. C.	NCC 6-3201	2963
99	UNIV OF MIAMI	Tobias, L.	ARC	Friedman, M. F.	NCA 2-438201	2316
99	UNIV OF NEW MEXICO	Bivins, R. G.	HQ-ET	Unavailable	NASW 2936	3568
99	UNIV OF NEW MEXICO	Bivins, R. G.	HQ-ET	Morain, S. A.	NASW 3408	3569
99	UNIV OF SANTA CLARA	Glazer, J. H.	ARC	Berg, R.	NCA 2-685202	1956
99	UNIV OF SANTA CLARA	Margozzi, A. P.	ARC	Greeley, R.	NCC 2-60	1961
99	UNIV OF SOUTHERN CAL	Bivins, R. G.	HQ-ET	Mixer, R.	NASW 3235	1991
99	UNIV OF SOUTHERN CAL	Gilbert, R. L.	HQ-ET	King, R. G.	NASW 3461	1992
99	UNIV OF SOUTHERN CAL	Bivins, R. G.	HQ-ET	Mixer, R.	NASW 3470	1993
99	UNIV TEXAS-DALLAS	Gaskins, M. A.	HQ-E	Hanson, W. B.	NGL 44-004-130	4653
99	UNIV OF UTAH	Carter, C. H.	HQ-LB	McCoy, R. M.	NGT 45-003-801	4698
99	VIRGINIA POLY INST	Hart, S.	ARC	Wierwille, W. W.	NAG 2-17	4928
99	VIRGINIA POLY INST	Hohl, F.	LARC	Unavailable	NAS 1-15080	4941
99	VIRGINIA POLY INST	Prior, E. J.	LARC	Unavailable	NAS 1-17100	4943
99	VIRGINIA POLY INST	Deloach, R.	LARC	Frair, L.	NSG 1598	4969
99	WORCESTER POLY INST	Harris, R. L., Sr.	LARC	Tole, J. R.	NCC 1-56	3220

